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November 18, 2004

Blanca S. Bayo, Director
Division of the Commission Clerk
and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

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Re: Docket Nos. 020896-WS & 010503-WU

Dear Ms. Bayo:

Enclosed for filing, on behalf of the Petitioners, are the original and 15 copies of the Direct Testimony of Dr. V. Abrham Kurien.

Please indicate the time and date of receipt on the enclosed duplicate of this letter and return it to our office.

Sincerely,

Charles J. Beck
Deputy Public Counsel

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by customers of Aloha Utilities, Inc. for deletion of portion of territory in Seven Springs area in Pasco County	Docket No. 020896-WS
In re: Application for Increase in Water Rates for Seven Springs System in Pasco County by Aloha Utilities, Inc.	Docket No. 010503-WU
	Filed: November 18, 2004

DIRECT TESTIMONY

OF

DR. V. ABRAHAM KURIEN

DOCUMENT NUMBER-DATE
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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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DIRECT TESTIMONY

OF

DR. V. ABRAHAM KURIEN

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Docket Nos. 020896-WS & 020503-WS

DIRECT TESTIMONY

OF

V. ABRAHAM KURIEN

Q. PLEASE STATE YOUR NAME AND ADDRESS/

A. My name is V. Abraham Kurien. I reside at 1822 Orchardgrove Avenue, New Port Richey, Florida 34655.

Q. WHICH UTILITY SUPPLIES YOUR DRINKING WATER AND FOR HOW LONG HAVE YOU BEEN A CUSTOMER OF THAT UTILITY?

A. Aloha Utilities Inc. supplies my drinking water. I have been a customer since June 2001.

Q. ARE YOU SATISFIED WITH THE QUALITY OF WATER IN YOUR DOMESTIC PLUMBING?

A. No.

Q. WHY?

A. Basically because intermittently, there is intense gray-black discoloration of water. This happens unpredictably and for no obvious reason. I find that I have to clean out my toilet tank and bowl quite frequently because of the black discoloration of the tank and the bowl.

Q. DO YOU DRINK ALOHA WATER FROM YOUR COLD WATER FAUCET?

A. I used to when I first moved into the house, as I did when I lived in other parts of the country. But after I started reading about what caused the black water phenomenon, I switched to drinking bottled water.

Q. WHAT ELSE DISTRESSES YOU ABOUT THE QUALITY OF WATER?

A. I had my laundry stained black by the water, so that I had to discard expensive clothes after they had been through the laundry. Now I have my wife check the water carefully before putting clothes in the washer. If necessary she runs water for a while, discards it and then starts all over again. We also wash our white clothes last. In spite of this I notice my clothes get grayish after a few times. I also have noticed particulate matter in the water, sometimes of the consistency of play-dough.

Q. HOW FREQUENTLY DO YOU EXPERIENCE POOR WATER QUALITY?

A. As far as the discoloration is concerned, it is there in increasing amount each day, till I clean out the toilet tank. The time to clean out varies from time to time and season to season suggesting some fluctuation in the formation of the discoloration. In summer months it seems like I have to clean out the tank and bowl more often to get rid of the gray or black color. Sometimes, the discoloration seems to occur overnight, but most of the time it is a gradual, but

fluctuating phenomenon. I have had laundry stained only 3 times in three years, but then my wife is very careful with my white clothes and goes through quite a ritual before washing them.

Q. DO YOU EXPERIENCE POOR QUALITY FROM BOTH THE HOT WATER AND COLD WATER FAUCETS?

A. Most of my problems are on the cold-water side. I drain the hot water tank every six months and put bleach in it, let it sit for a while and run it through all the hot water pipes and flush out the tank and the pipes. I see a small amount of black material when I do this.

Q. UNDER WHAT CIRCUMSTANCES OF USE HAVE YOU EXPERIENCED POOR QUALITY?

A. Almost always while we are at home and using all faucets in the house, including the kitchen and two bathrooms. We make sure that both toilets are flushed at least once each day. Showers are used regularly every day. We have noticed black water more often in the master bathroom that we use more frequently than the guest bath. I turn off the water outside the house when we go on vacation and drain out the water between the meter and the outside faucet before we allow water to run into the house when we return. Before we discovered this trick we had a little run of gray water when we came back after being away from home for a few days.

Q. WHAT KIND OF PIPES DO YOU HAVE?

A. I assume the house has copper pipes, because where the pipes are visible they are made of copper. The connection between the outside faucet and the water softener is plastic pipes, because the previous owner had the water softener installed after the house was built and used plastic pipe to connect the water softener.

Q. DO YOU USE ANY OTHER FORM OF WATER CONDITIONING OR FILTERS?

A. We have a sediment filter *after* the softener, which we change once every 3-6 months depending on water usage. It is a 15-micron filter. When we change it, I notice that its color has turned from white to black.

Q. HOW DOES POOR WATER QUALITY AFFECT YOU AND YOUR FAMILY?

A. First of all it affects us, because of health concerns. It has made it necessary for us to buy bottled drinking water that costs us over $300 a year. Secondly, we are concerned about what it will do to our pipes in the long run. Thirdly, it means that we have to clean out toilet tanks and bowls much more frequently, and this is an added and unnecessary chore. There is a cost and labor involved in changing filters and cleaning out the hot water heater frequently. It also affects our clothes when they are washed.

Q. HAVE YOU SOUGHT THE HELP OF ALOHA UTILITY IN UNDERSTANDING WHY THE WATER QUALITY IS INTERMITTANTLY POOR IN YOUR HOME AND ALSO IN IMPROVING IT?

A. I had contacted Aloha even before we moved to Florida because I understood that a private monopoly utility would be our drinking water supplier. I was told by Aloha that it met all State and Federal standards. The Utility did not indicate that it was having a problem with a significant number of customers in the Seven Springs area complaining about the quality of water. When the water started turning grayish black in the toilet tank after we moved into the house, I contacted Aloha because I thought it was something unique to our house! A technician came and showed me how clear the water was at the meter and that if the water was grayish black in color in the toilet tank it must be due to the copper pipes I had in the house and it was not the Utility's responsibility. The technician would not even come into the house to see how grayish black the water was! Within two months, I had all faucet cartridges replaced, because they were made of bronze and were corroded. I was surprised such replacement was necessary in a house that was only 3 years old. The plumber told me that Aloha water is very corrosive. Then I decided to start an investigation into what was unusual about the water from the point of view of its chemistry because I have a degree in chemistry.

Q. DO YOU FEEL THAT THE UTILITY GAVE YOU A SATISFACTORY EXPLANATION?

A. The next time the water in the toilet tank turned grayish-black, I wrote a letter to Aloha demanding a better explanation than what the technician had told me before. Aloha sent me an information package that tried to explain the reasons for water discoloration. Aloha maintained that the delivered water was "clean, clear and safe" as far as the domestic meter and explained that the black sediment was copper sulfide. According to the Utility it was the result of bacteria converting sulfate present in water to hydrogen sulfide after the water entered the domestic pipes and its reaction with copper pipes and therefore the utility could not be held responsible. I did not find that answer entirely convincing because of the time course of the intermittent production of black water and the variation in its intensity in my pipes. I am a physician by profession and have a fairly good grasp of the significance of symptoms in a dynamic system and how to investigate problems, establish a diagnosis and how to go about treating it.

Q. WHAT DID YOU DO THEN?

A. I made some inquiries in my neighborhood and discovered a vast majority of neighbors in my subdivision had a problem similar to mine with some people experiencing the phenomenon with greater intensity. Some had more problems in their hot water faucets. They indicated that the problem had been going on for over 7 years. I made enquiries with other utilities in the nearby counties and cities and found that they had very low incidence of black water and discovered that their methods of processing water was quite different from that of Aloha. I also recognized that Aloha and its customers had

become polarized in their views about the causes of poor quality and as to who should be held responsible for the poor quality of water. A water rate hearing was coming up within 2 months of my initial enquiry with the Utility and I decided I would attend the hearing and offer to help the utility and the customers to find the scientific reason for the problem by researching the issue locally and try to solve it for everybody's benefit. I knew that the customers and the utility had wasted a lot of time deciding whether the utility or the customers should take responsibility for the discoloration of water quality, and I saw an opportunity for the provider and customers to work together. I just wanted the problem solved! As a retired physician with a good knowledge of inorganic chemistry and bacteriology, I realized that this was a technical problem with a scientific solution and must be approached very methodically and could be solved in the distribution area of Aloha just as well as other utilities had done. At the PSC hearing held in January 2002 in New Port Richey, I made the suggestion that the customers should work with Aloha to identify the scientific cause for black water and accept inevitable rate increases to the level charged by neighboring utilities. (Exhibit VAK-1). I was surprised when the President of Aloha Mr. Watford and the Chairman of the PSC Commission Lila Jaber thought this approach to the problem was excellent and I was asked by Commissioner Lila Jaber to take the initial steps for the creation of a Customers' Advisory Board to work with the Utility and create an expedient and compatible solution for the problem of poor water quality.

I wrote to thank Mr. Watford for his willingness to work with the customers to solve the water quality issues and indicated that I was looking forward to working with the Utility. He informed me that Mr. David Porter, Aloha's consulting engineer, would visit my home to get as much information as possible about my personal experience of water quality.

Few days after the hearing, Mr. David Porter visited my house so that he could see at first hand what was happening in my plumbing. He explained Aloha's position very thoroughly. I invited him to look into the toilet tank, which had black water. He claimed that the water was black because the black flotation ball in the tank was being corroded and not because of the formation of copper sulfide. At that time I thought he was joking! Only later did I realize that he believed that his statement was an accurate scientific observation. I wrote a letter to Mr. Watford, President of Aloha (Exhibit VAK-2) with some suggestions on how to set up a Customers' Advisory Board that could work with the Utility to solve the problem and create a win-win situation for both parties.

Q. WHAT HAPPENED THEN?

A. When Mr. Watford did not reply to my letter with suggestions for the formal setting up of the CAC, I contacted the Public Service Commission staff to let Chairman Jaber take the initiative in setting up the Customers' Advisory Committee because she was also in favor of this approach. Beverly DeMello of the Consumer Protection Department called me to set up a teleconference

between Aloha's President, its Attorney Mr. Deterding, Attorney from the Office of Public Counsel Mr. Burgess and me on January 31, 2002. Beverly DeMello acted as facilitator. I offered Aloha the opportunity to speak first and was flabbergasted that its Attorney, Mr. Deterding, said that Aloha was prepared to discuss anything that concerned its customers as long as technical matters which was the crux of the problem of black water was not the subject of discussion. (Exhibit VAK-3). Thus at the very first contact between the utility and the customers, the utility's attorney sabotaged what could have been the first step towards a meaningful and a co-operative project between the Utility and its customers! In a letter to Mr. Watford the following day, I indicated I could not take the responsibility for the formation of a Citizens' Advisory Committee (CAC) if the utility, which had indicated during the PSC hearing its willingness to work with the customers to solve the most important concern of the customers, now considered that matter completely off the agenda for discussion. (Exhibit VAK-4). I sought clarification from Mr. Watford.

I did not get a reply for 2 weeks. So I wrote to Rep. Fasano to seek his help. (Exhibit VAK-5). Rep. Fasano contacted Mr. Watford about the matter. Mr. Watford then sent a reply to Rep. Fasano (Exhibit VAK-6) indicating that he had repeatedly assured me during the teleconference that a discussion about black water was still on the agenda. That was news to me! The Utility indicated it would be going ahead with the formation of a CAC. The mixed signals that I received from the President of the Corporation and its Attorney

were very troubling to me since I found it difficult to determine whether Aloha was willing to work with the customers or not. Only time would tell.

Q. WAS A CITIZENS' ADVISORY COMMITTEE FORMED BY ALOHA?

A. On April 11, 2002 the President of the Home Owners Association of Wyndgate, which is the community where I live, received a letter (Exhibit VAK-7) from Mr. Watford indicating that the formation of the CAC was being postponed because the requirements of the PSC were "well beyond and in several instances at variance with our plans". The PSC staff had recommended in its March 21, 2002 memorandum the formation of a Citizens' Advisory Committee with specific instructions about how it should be formed and should conduct its business. Aloha challenged the orders of the PSC and appealed them in the First District Court of Appeals in June(,)2002. The PSC, in an order towards the end of 2002, insisted that Aloha should go ahead with the formation of the CAC. Mr. Watford held an organizational meeting for the formation of the CAC in March 2003, 15 months **after** its formation was initially suggested.

Q. WHAT DID YOU DO IN THE INTERIM?

A. I collected as much information as possible about previous activities by the customers and regulatory agencies to understand the nature of the water quality problems and to try to solve them. I wrote to Aloha Administration and its Consulting Engineer for information about processing methods. Since

I did not get any information, I contacted customers in the neighborhood who had attempted to get the issues resolved earlier. I researched the correspondence and documents they had, discussed the matter with FDEP, SWFWMD and PSC and obtained documentation suggesting the use of chlorination as the *sole* method for processing water that contained hydrogen sulfide was inappropriate and that additional steps to the water processing method were necessary (Exhibit VAK-8) to avoid black water. I also began to understand that incomplete oxidation of hydrogen sulfide present in raw water to sulfate *would* result in the formation of elemental sulfur. The Consulting Engineer of Aloha, Mr. David Porter, had indicated as early as 1997 that water turbidity increases associated with elemental sulfur formed during water processing could lower disinfection efficiency, increased chances for bacterial contamination and growths in the distribution system. (Exhibit VAK-9). However, all the same, Mr. Porter denied the formation of elemental sulfur in Aloha's processing system. On the other hand Mr. Van Hoofnagle, the Administrator of the Drinking Water Program of the FDEP, indicated that my observation "that Aloha might be using inadequate methodology is correct". (Exhibit VAK-10). Mixed signals once again about water chemistry!

Q. WHAT WAS YOUR NEXT STEP?

A. I discussed the matter with my neighborhood subdivisions where the incidence of black water seemed high. Some customers had worked with Aloha, FDEP and PSC for many years and had found that Aloha was unwilling to admit that upgrading of water processing method was essential

and urgent to remedy the limitations of the sole use of chlorination for water processing. Copper concentrations above actionable levels had been identified in Aloha's distribution system in 1993 (Exhibit VAK-11) but no remedial intervention had been undertaken till 1996 and Aloha had come in compliance with Lead and Copper Rule only in December 1997. Aloha had not sampled domestic water for copper levels in areas which reported high incidence of black water but confined its sampling to limited areas of its service Area and claimed compliance. (Exhibit VAK-12). The Utility did not accept any responsibility for the formation of copper sulfide in domestic copper pipes because it had no copper pipes in its distribution system and only customers had copper pipes. Aloha claimed that the water it delivered met all State and Federal standards. Aloha recommended replacement of copper pipes with CPVC pipes as the only way to significantly reduce black water problems. Many of the new homes were built with plastic pipes, but those homeowners started complaining of rotten egg smell from their faucets and in some instances even black water. Aloha had claimed that the removal of chlorine by water softeners was responsible for re-formation of hydrogen sulfide in domestic plumbing and accounted for both the mal odor and copper corrosion. (Exhibit VAK-13). However, PSC Staff have documented that water discoloration was noted even in homes that had no water softeners.

Q. CONFRONTED WITH ALOHA'S UNCOMPROMISING STANCE, WHAT DID YOU DO?

A. Faced with a Utility that was unwilling to admit its processing method was inadequate to produce water that would remain stable in domestic plumbing, and that this might in some way be responsible for black water and rotten egg smell in domestic plumbing, customers decided they needed to take a more assertive stance. Even after 7 years of approaching the utility, the County, and the regulatory agencies including the PSC, no effective step had been taken to solve the problem. Attempts to solve the issue of poor water quality seemed mired in legal jousting between the utility and those whose responsibility it was to ensure that the customers had a competitive product of good quality from the water monopoly. When the Utility appealed the April 2002 orders of the PSC that seemed to hold the promise of an effective remedial action, the customers decided to file a petition with the PSC for deletion of service territory from Aloha's certificate of authorization as the only way to get improved quality water. (Exhibit VAK-14). But even while doing so on July 15, 2002, 1491 customers from 1341 households in a specific area of Aloha's service area, decided to give Aloha a 12-month additional period in which it could work with its customers to create a win-win situation for both parties. As an essential step towards understanding the causes of poor quality water on a scientific basis, the customers requested an independent technical audit, so any new method that would be necessary to improve water quality to a comparable level to that delivered by neighboring utilities would be chosen on the basis of a scientific evaluation of the deficiencies of the current method and the need for appropriate corrective measures.

Q. DID THE TECHNICAL AUDIT TAKE PLACE?

A. Aloha Utilities filed for dismissal of the customers' petition by claiming that the PSC had no jurisdiction and authority to entertain such a petition! (Exhibit VAK-15). Yet, in another docket before the PSC at about the same time, Docket No. 020413-SU, an Aloha attorney admitted that the PSC had the jurisdiction "to amend, suspend or revoke any certificate of authorization issued by it". (Exhibit VAK-16). The customers appeared before the PSC and requested institution of a technical audit to find out if the customers' claim that the water processing method and facilities used by Aloha were inappropriate and inadequate to produce good quality water was valid. (Exhibit VAK-17). A technical audit, the customers reasoned, would establish the scientific basis for an uncontestable imperative for Aloha to upgrade its processing method and improve its facilities. The PSC found itself unwilling to order an audit even though it had eminent authority and jurisdiction according to Florida Statutes, Chapter 367.121(2). The Office of Public Counsel (OPC) came to the rescue of the customers and took upon itself the burden of sponsoring and financially supporting the technical audit. The customers identified a University Associate Professor Dr Audrey Levine of the University of South Florida to conduct the audit. The OPC signed a contract with Dr Levine in January of 2003.

Q. WHAT DID YOU DO WHEN THE CAC WAS FINALLY FORMED?

A. By April of 2003, the CAC was formed and started its activities with high hopes of working with Aloha and solving the problems they faced. The CAC

provided opportunities for customers to be informed about the complexities of water processing and the need for sophisticated methods to produce good quality water and indicated this would result in ever-increasing costs for processed water. Aloha was given an opportunity to discuss with its customers its methodology and facilities and indicate if there was any need to upgrade them to improve water quality. But Aloha kept chanting its chorus that the water it delivered met all State and Federal regulations and therefore the Utility could not be held responsible for water quality issues experienced by customers. The CAC also gave regulatory agencies an opportunity to indicate their roles in improving water quality and in assuring customers that an adequate water supply would be available in an area that was undergoing rapid real estate development.

The CAC found Aloha to be unenthusiastic towards the technical audit and especially about the sampling of its water at the wells and within the distribution system to establish whether there might be some parameter that needs better monitoring and tighter control for improving water quality. After almost a year of intermittent delays and frustrations caused mainly by Aloha's reluctance, Dr Levine submitted two technical review reports: the first in August 2003, and the second in February 2004. (Exhibit VAK-18). She recommended upgrade of processing methods, without specifically identifying the cause of poor water quality.

Q. HAS ALOHA FOLLOWED UP ON DR. LEVINE'S RECOMMENDATIONS?

A. In her first report Dr Levine had recommended some short-term steps to improve water quality, which could be easily achieved, but to my knowledge, Aloha has not so far implemented any of them. After the second report, in which Dr Levine indicated that upgrades of processing method would be essential to improve water quality, Aloha became very enthused about adopting a new method for processing. In fact, Dr Levine who was the OPC auditor was offered the opportunity to work with Aloha as its University Consultant to install a method of oxidation of hydrogen sulfide, which uses hydrogen peroxide instead of chlorine as the oxidant. Dr Levine has accepted that offer. However, as recently as September of 2004, Aloha's consulting engineer Mr. Porter and Dr Levine, Aloha's University of South Florida consultant have not been able to assure the customers that the specific method that Aloha contemplates installing to upgrade its water processing will be able to *significantly* reduce the incidence of black water or mal odor in the domestic plumbing. (Exhibit VAK-19).

Q. WHY ARE THE CUSTOMERS PRESSING FOR DELETION OF TERRITORY NOW AFTER THE AUDIT IS COMPLETED AND ALOHA HAS OFFERED TO INSTALL A NEW METHOD FOR WATER PROCESSING?

A. A review of Aloha's service to its customers between 1993 when complaints were initially lodged with the PSC and the year 2002 clearly demonstrates that

Aloha has not provided reasonably adequate service. The Public Service Commission itself has determined on numerous occasions that Aloha's customer service is unsatisfactory. The two and a half years between January 2002 and September 2004 have been a period of revelation to me personally, and I believe to the customers in general, of the corporate culture of Aloha, which made its service so unreasonably inadequate and its attitude so very poor towards its customers. In spite of less than friendly relations between provider and customer previously, the year 2002 began with very high hopes for co-operation between the utility and the customers because of Aloha's indication at the PSC hearing in January 2002 that it was considering the formation of a customers' advisory group to resolve water quality issues. I personally had hoped that discussions between Aloha and its customers would be a glowing example of meaningful co-operation between a relatively small water utility and its customers and set a wonderful example of what good customer relations would achieve. But my hopes and that of the petitioners have been severely impaired by the way the utility refused to share information with knowledgeable customers who were willing to help Aloha develop something like a 5 or 10 year plan for supplying good quality water for its customers. Customers who had many years' of corporate experience in improving customer relations offered to help Aloha. Customers who had a scientific background brought to the attention of Aloha probable deficiencies in water processing methodology and facilities, correction of which could improve the quality of water. However, Aloha turned its face away from its customers and continued to treat them like a cash cow, which could be

milked, without making the slightest attempt to improve water quality. Its customer service was so intolerable that the petitioners indicated repeatedly in numerous letters to the PSC and to local newspapers that they would opt for another provider if they had that choice. (Exhibit VAK-20). Instead of listening to their cries for help, Aloha appealed the decisions of the PSC and tried to obstruct equal opportunity to the customers before the PSC by seeking to have their petition dismissed. Aloha turned a callous, legalistic face towards the customers and in addition approached the PSC to collect from its customers $659,000 it had not collected from builders to whom Aloha had promised water connections! (Exhibit VAK-21). Aloha's corporate culture had no hesitation in partially withholding a refund of interim rate increases that were subsequently denied by the PSC. (Exhibit VAK-22). Its engineering staff did not inspire confidence because it distorted scientific knowledge to fit in with a speculative hypothesis about the cause of black water in domestic pipes. During a PSC hearing on April 8, 2004, four corporate officials, including the consulting engineer of Aloha, did not seem to know what was going on in its processing system as demonstrated by their inability to answer a few very simple questions about the water parameters that the Utility checks almost on a daily basis. (Exhibit VAK-23). The calculations that Aloha will need to purchase large volumes of water from Pasco County in the coming years and that such will result in significant increases in water rates was not very comforting to the customers, when they could get the same water at a lower cost directly from Pasco County Utility. (Exhibit VAK-24). I re-adopt the testimony I provided on April 8, 2004 and

am available to answer questions about it. (Exhibit VAK-25). I explained in great detail during the customer service hearing on April 8, 2004 why the customers are strong in their desire for a new provider of drinking water. I am of the opinion that Aloha wants to run its Corporation without recognizing its customers' need for good quality water as its primary responsibility as a monopoly. I base this conclusion on my evaluation of Aloha's attempts to obstruct due process to the customers, its refusal to be subject to regulatory supervision as shown by its constant confrontational attitude towards the PSC, its inability to pay attention to scientific facts and by its desire to distort demographic data to suit its own undeclared goals of hanging on to the service territory. Aloha is over pumping beyond its Water Use Permit (WUP) and will have to buy large volumes of water from the neighboring Utility at a higher cost than the customers will if they were to become retail customers of the Pasco County Utility. This does not seem to concern Aloha at all!

Q. CAN YOU ELABORATE ON THE DEFICIENCIES OF THE CURRENT METHOD OF PROCESSING, AS YOU UNDERSTAND THEM?

A. **I need to give you some information about my educational backgr**ound. First **let me say what education I do not have. I am not a lawyer, nor do** I have a degree in jurisprudence. I do not have a degree in general engineering, or specifically in water processing, but I do understand chemistry quite well. I have a Batchelor's degree in Science with Chemistry as my main subject. After graduating, I taught chemistry in the college from which I graduated as a

demonstrator which means, I was the one teaching undergraduates how to identify chemical elements in samples of unknown substances. So I have a pretty good grasp of chemical equations, and the reactions occurring between elements and the appropriate ratios between them for reactions to take place and to proceed to completion. I also have a medical degree from the University of Edinburgh in Scotland from which I graduated as the gold medalist of the year 1963. During 1965 and 1966 I undertook extensive research into the chemical and metabolic changes occurring after heart attacks. So I understand the problems involved in pumping fluids containing chemicals around a distribution system. I continued that research when I was on the staff of the University of Edinburgh between 1968-1970 as a Lecturer in Medicine, which is the equivalent of an Assistant Professor in the USA. So I have a fairly good grasp of scientific methodology. I have published articles in peer-reviewed journals such as the American Journal of Cardiology, Progress in Cardiovascular Diseases, American Heart Journal, European Journal of Clinical Investigation, and the British medical journal, The Lancet. I practiced as an internist and Cardiologist for 20 years in Manchester, Connecticut and retired in 1990 and have a good understanding of the science of bacteriology.

My concern when I realized that copper corrosion was occurring in the drinking water in domestic pipes was its health implications to those who might be drinking this water. I obtained a copy of the material safety data sheet (MSDS) from the manufacturers of copper sulfide in this country and

discovered that it could have medical consequences. (Exhibit VAK-26). This is also confirmed by information from EPA sources, which includes copper as part of the National Primary Drinking Water Standards. (Exhibit VAK-27). Since the grayish discoloration in water due to copper sulfide is apparent only when the levels of copper is much higher than the actionable level, I was concerned that those who were uninformed or who could not afford to buy bottled water could possibly be exposing themselves to toxic levels of copper if they drank Aloha water. I did notify the Secretary of Health about my concerns and was not satisfied about the initial reply I received which was an assurance based on incomplete data supplied by Aloha as to whether the water was safe to drink. (Exhibit VAK-28).

So I decided that I must undertake my own investigations. I looked at the explanations offered by Aloha that claimed that the water was "clean, clear and safe". As a physician, I was acutely aware of the fact that what appears to be clear to the unaided human eye can be the source of major problems to human health and to the well being of metal pipes which could release toxic substances when corroded. When Mr. Hoofnagle, the Administrator of the Drinking Water Program of the FDEP, sent me a scientific paper showing that black water could be due to the **sole use of chlorination as a processing** method (Exhibit VAK-8), I needed to persuade Aloha, the regulatory agencies and the State government that there *might* be a significant problem associated with the way Aloha was processing water. So I did write to Governor Bush

and to all governmental agencies that might be have a responsibility in this connection explaining my concern. (Exhibit VAK-29).

In any scientific investigation, you must have a hypothesis, which is created on the basis of the facts already known. Then you test the hypothesis to see if it is correct on the basis of experiments. If your experiments do not substantiate your hypothesis, you modify the hypothesis and do more experiments till you have a better hypothesis, which can explain the observations on a scientific basis. When that happens, you call it a theory . If all the known facts can be accounted for by the theory, then you call it a scientific principle or law which should be capable of explaining all facts within the system that you are studying. If, a new fact is discovered that cannot be explained by that law, then the theory and the law fall by the wayside and a new theory is created to take its place and its truth is tested by further experiments and observations. That is how science proceeds.

On the basis of the facts that Aloha and its engineer had supplied in their information package and discussions, I created a hypothesis, which proposed hydrogen sulfide that is not oxidized by chlorination would escape into the processed water when there was an insufficient amount of chlorine to neutralize the hydrogen sulfide that was present in source water. This could explain the formation of black water due to the corrosion of the copper pipe, the extent of which would be proportional to the amount of hydrogen sulfide still present in water in non-oxidized form. I wanted to find out how much

hydrogen sulfide was present in source water in Aloha's wells and how much chlorine was being injected so I could calculate how much hydrogen sulfide would escape into the processed water. I requested these figures from Aloha, but Aloha did not supply these figures, because apparently the Utility did not measure these parameters for process control. So I tried to measure them on my own. Using kits available for the measurement of hydrogen sulfide in water, I measured hydrogen sulfide in close to 100 samples in a subdivision and found extremely small amounts of hydrogen sulfide in delivered water. I requested Mr. Hoofnagle of the FDEP to confirm my findings and he had samples of delivered water checked and found similar values. (Exhibit VAK-30). These amounts could over a period of days cause slight grayish discoloration of water, but would not explain the large amounts of black material found in some homes intermittently. So we needed an additional explanation for that. Aloha's explanation of black water that it was caused by the re-formation of hydrogen sulfide from sulfate due to the action of sulfur reducing bacteria present in delivered water seemed reasonable. (Exhibit VAK-31). This is a reversal of the raw water processing reaction in which hydrogen sulfide is converted to sulfate by the oxygen released by chlorine from water. The re-formation of hydrogen sulfide requires the presence of bacteria to facilitate that reaction. Based on data from other investigations, it is known that underground water that is the source water for Aloha's drinking water contains sulfur-reducing bacteria. **This bacterium is most active when there is no oxygen available and its activity is significantly curtailed by aerating water**. Chlorine is a disinfectant agent that releases oxygen, which

kills or makes this bacterium ineffective in carrying out chemical reactions. Hence adequacy of chlorine and long enough exposure to it are essential for disinfection. If re-formation of hydrogen sulfide is a direct cause of copper corrosion, then chlorine is not doing its job in the delivered water or there is not enough chlorine present in the water when it is delivered to continue to do that job. **Aeration may be necessary to inactivate this bacterium.**

I collected data to find out if there was enough chlorine in the processed water at each well by examining records submitted by Aloha in the form of monthly operating reports (MOR) to FDEP. I had concerns about some of the data Aloha had submitted to FDEP in the form of the monthly operating reports. (Exhibit VAK-32). That investigation showed that there was enough chlorine in the processed water at the wells most of the time. The next move was to find out if there was enough chlorine where water was being delivered, namely at the domestic meter. Investigations showed that there might have been occasions in which the levels of chlorine in delivered water were low enough for the disinfectant action of chlorine not to be adequate. I requested FDEP to check these levels independent of any notice to the customers or the utility. FDEP conducted these tests and found low chlorine levels on some occasions. (Exhibit VAK-33). FDEP was asked to repeat these tests. A second set of samples showed very high levels (Exhibit VAK-34), almost twice the levels compared to the tests that were done previously without notice. (Exhibit VAK-35). This wide range of chlorine residuals suggested poor process control.

The third factor that was considered as relevant as a contributing factor to the production of black water was the presence of elemental sulfur in processed water. In 1991, it had been pointed out that the ***sole*** use of chlorination might cause turbidity in water, assumed to be due to the production of elemental sulfur, which is formed along with sulfate during the oxidation of hydrogen sulfide and that it could predispose to black water. (Exhibit VAK-36). Turbidity is measured by the ability of suspended matter in a liquid medium to scatter light. Elemental sulfur being a colloid when it is produced during water processing can increase the turbidity of underground water. Mr. David Porter, consulting engineer of Aloha, at the PSC hearing in 1996 had indicated elemental sulfur is formed during chlorination of source water and that besides the sulfate already present in water, elemental sulfur formed during water processing also can be converted into hydrogen sulfide. (Exhibit VAK-37). I reasoned it would be appropriate to find out the extent of elemental sulfur formed in the wells of Aloha that might explain black water in some areas of Aloha's service territory. It had been the impression of customers that black water had become a major source of concern after wells 8 and 9 were brought on line towards the end of 1995. So these wells became a major focus of concern. Attempts were made to collect information about hydrogen sulfide levels in the raw water of Wells 8 and 9. However, data about these wells were very limited. Calculations were done of the reserve capacity of the chlorinators at each of the wells using the known levels of hydrogen sulfide in each well. It seemed that the chlorinator at Well 9 did not have the theoretical capacity to convert all the measured hydrogen sulfide in the raw water to

sulfate and therefore elemental sulfur was being formed . (Exhibit VAK-38). There was not adequate reserve capacity in the chlorinator at that level to convert more than 3 mg/l of hydrogen sulfide to sulfate. The question came up immediately, "Might this be an explanation for the clustering of black water problems in the distribution area of Well 9?" Mr. Porter had stated, "The water characteristics from Wells 8 and 9 were essentially the same as other wells". (Exhibit VAK -39). However, I had my own doubts because of the greater frequency of black water phenomena reported in a survey done by Aloha in 1998 at the request of the PSC which showed areas that received water from Well 9 might have higher incidence of complaints about poor water quality. (Exhibit VAK-40). Luckily for my attempts to get some data about Well 9, they became available in October(,) 2002 from the MIEX pilot project, which was done by Aloha using water samples from Well 9. All 20 samples of source water obtained from that well during a 3-month period had hydrogen sulfide levels greater than 3.5 mg/l with the highest level being 6.71 mg/l. (Exhibit VAK-41). These facts were known to Aloha since April-July 2001, but no action had been taken. My calculations based on the equation that Mr. Porter claimed was the relevant equation for water processing in Aloha's water processing showed that these high levels would result in high levels of hydrogen sulfide in delivered water because the chlorinator at Well 9 would not be able to convert all the hydrogen sulfide to sulfate. (Exhibit VAK-9). I presented the data to an agenda conference of the PSC and requested an *urgent audit* of Aloha's facilities. (Exhibit VAK-17). But as I have mentioned already, the OPC instead of the PSC sponsored the audit. Dr

Levine later confirmed my conclusion by showing that at Well 9, if a free chlorine residual of 3 mg/l of processed water is to be maintained, the maximum amount of hydrogen sulfide that could be converted to sulfate was 2.6 mg/l. (Exhibit VAK-18, Phase I Report - page 20). The remainder would be present in the form of some other type of sulfur byproduct.

It was Dr Levine's Phase I report issued in July 2003 that forced me to recognize an important point about the oxidation of hydrogen sulfide by chlorine that I had not paid enough attention to, because Mr. Porter had mostly emphasized the conversion of all hydrogen sulfide to sulfate in a defense of the adequacy of Aloha's treatment method in 1997. (Exhibit VAK-9). The assumption had previously been made that *all* hydrogen sulfide present in raw water was converted to sulfate by chlorination, as I read repeatedly when I was looking through the PSC memoranda and the water information literature distributed by Aloha. I remembered that Mr. Hoofnagle of FDEP had sent me a scientific article, which discussed the role of turbidity produced during the sole use of chlorination in the production of black water. His office had also sent a copy of the same article to Mr. John Starling of the PSC . (Exhibit VAK-8). I read that article again and wondered whether elemental sulfur was being formed in Well 9 and some of the other wells of Aloha at least intermittently and whether this might account for the formation of black water. We needed samples of processed water from Aloha's wells to establish whether or not elemental sulfur was being formed in Aloha's wells and to what degree such production took place. The other important point I

needed clarification about was why Mr. Porter, who had once mentioned in his 1996 testimony that elemental sulfur was formed during oxidation of hydrogen sulfide, had not corrected the statement of the PSC Memoranda of 1997-1999, "Currently, Aloha is converting (oxidizing) **all** of the sulfides which are present in its raw water into sulfate by chlorinating water" (Exhibit VAK-42) or reported to FDEP that between April and July 2001 raw water samples from Well 9 contained hydrogen sulfide levels which would result in significant amounts of elemental sulfur in delivered water. So I went back to my archives of documents once more. There I discovered a *possible* explanation for Aloha's specific approach to the cause of black water and water quality problems in its service area.

Beleaguered by customers of Aloha who were experiencing significant water quality problems, then Representative Mike Fasano had contacted Pasco County to verify whether or not Aloha's explanation of black water was correct and if so, what it was that Pasco County Utility was doing that protected its customers from such high incidence of black water since both utilities drew water from the same Florida Aquifer. Aloha Gardens, that received water from Pasco County Utility but is managed by Aloha Utilities, had a much lower incidence of black water. The letter that Rep. Fasano received from Mr. Doug Bramlett, Assistant Administrator of Pasco County, claimed that it was the presence of elemental sulfur along with the corrosion inhibitor added by Aloha that might be the cause of the problem. In trying to defend Aloha against this suggestion, Mr. Porter wrote a pungent letter to Mr.

Bramlett denying the presence of elemental sulfur in Aloha's processing methodology and eliminating an important chemical equation that he knew, or should have known, is relevant to the reaction between hydrogen sulfide and chlorine. (Exhibit VAK-9). At about the same time, delivered water drawn from the areas supplied by Well 9 had shown high levels of copper. Based on the copper readings that were provided of tests done in Aloha's service area by Aloha Utilities, FDEP and the Pasco County Department of Health, an opinion was obtained from Dr. Uford A. Madden of the Bureau of Toxicology. (Exhibit VAK-43). Dr Madden emphasized, "**Aeration is needed** to reduce and prevent the formation of hydrogen sulfide in the drinking water in the copper tubing system which would reduce the cold water copper corrosion rate". (Exhibit VAK-44). Aloha's attorneys contacted Dr. Garrity at FDEP to address this "alarmist" report. While it seems very probable that Dr Madden's alarmist conclusions were wrong in many aspects, did Dr. Madden's appropriate emphasis on the **need for aeration** act as a possible trigger for Mr. Porter to defend the sole use of chlorination that Aloha was utilizing as a processing method? Was that the reason for Mr. Porter to reverse himself from his previous position that there was elemental sulfur produced in Aloha's wells because he had previously indicated that elemental sulfur could be also be converted to hydrogen sulfide in the customers' pipes and cause corrosion? In his chastising letter to Mr. Bramlett for his lack of understanding of water processing and the presumed causative role of elemental sulfur and the corrosion inhibitor in the production of black water, Mr. Porter admitted, " **the main problems associated with converting**

hydrogen sulfide to elemental sulfur are related to finished water turbidity increases and the negative effects that increased water turbidity produces like lower disinfection efficiency, increased chance for bacterial contamination and growths in the distribution system etc". (Exhibit VAK -9). After having said that, Mr. Porter could hardly concede that Aloha's processing method was also producing elemental sulfur in water processed from some of its wells, especially Well 9 and accept a role for elemental sulfur in the increased frequency of black water and other water quality problems. Hence his claim, *"Aloha provides proper, and generally accepted, treatment for the control of hydrogen sulfide at its well sites. Chlorine oxidation of hydrogen sulfide is provided at each well site. This method is very successful, as the water entering the distribution system does not contain any measurable quantity of hydrogen sulfide.* ***All hydrogen sulfide is oxidized to sulfate****. The chemical equation related to this reaction is well known and well understood. This process has been utilized at countless numbers of water utilities for controlling hydrogen sulfide for decades. The equation follows:*

$$H_2S + 4Cl_2 + 4\,H_2O \rightarrow H_2SO_4 + 8HCl$$

Please note that no elemental sulfur is produced in this reaction … only the sulfate form of sulfur remains*".* (Emphasis added, Exhibit VAK-9).

Mr. Porter seems to have conveniently forgotten that the primary step in hydrogen sulfide oxidation is a more simple reaction represented by the equation,

$$H_2S + Cl_2 \rightarrow S_0 + 2HCl$$

as pointed out by Dr Levine in Phase I Technical Review Report. (Exhibit VAK-18). It is also well documented by Dr Levine's audit that elemental sulfur is indeed formed in some of Aloha's wells. According to another researcher, the degree of turbidity during the sole use of chlorination for water processing is expressed by the equation,

$$\text{Turbidity} = 0.363[H_2S]^{4.062}\,[pH]^{1.578}[\text{Time}]^{0.579}\,[DO]^{-0.226}\,[Cl_2]^{-2.043}$$

indicating the most significant factor in the production of turbidity is the concentration of hydrogen sulfide in raw water. (Exhibit VAK-8). Aloha had high concentrations of hydrogen sulfide in Well 9.

Thus it seems reasonable to assume that a byproduct of water processing using the **sole method of chlorination** is likely to be a major reason for the causation of black water. (Exhibit VAK-45). Such a conclusion about the limitation of the sole use of chlorination was arrived at during a research project undertaken in 1991 at the neighboring Pinellas County Utility by Troy Lyn and submitted as a thesis to the University of Central Florida for a

Master's degree. A paper based on that thesis was published in the American Water Works Association Proceedings- 1993 Part II, pages 981-991, after being presented at the Water Technology Conference in November 1993 in Miami, Florida. (Exhibit VAK-8). In 2003, the FDEP issued a new guideline, which echoes the conclusion of that research paper with this sentence, "Direct chlorination **shall not be used** to remove (i.e., oxidize) 0.3mg/L or more of total sulfide unless elemental sulfur formed during chlorination is removed". **This directive is part of the section, "Control of Copper Pipe Corrosion and Black Water.** (Exhibit VAK-46).

In the two reports submitted after a "Technical Review of the production and distribution of Drinking Water in the Seven Springs System" Dr Levine provides data to show the production of elemental sulfur must have occurred in some wells of Aloha and that an upgrade of processing method and better process control are necessary. Even though it is true that Dr Levine did not identify the specific reason for the production of black water, her suggestion "additional treatment would be necessary to provide complete conversion of the hydrogen sulfide to sulfate" is indirect evidence that formation of **intermediate products of oxidation has a role in the formation of black water.**

Q. WOULD YOU PROVIDE ADDITIONAL EVIDENCE AND BE MORE SPECIFIC ABOUT YOUR CLAIM OF THE UNWILLINGNESS OF ALOHA TO BE PROACTIVE IN COMPLYING WITH UTILITY NORMS AND TO BE SUBJECT TO REGULATORY SUPERVISION?

A. In 1987, the State Department of Environmental Regulation (DER) filed suit against Aloha Utilities Inc. for chronically dumping treated wastewater into Holiday's Lake Conley (an area in the Southwest corner of Pasco County). The DER had warned Aloha about piping effluent into beleaguered Lake Conley more than two years previously, but had held off taking the utility to court in the hope that Aloha would be able to solve its long term disposal problems. (Exhibit VAK-47).

In October 1992 the Florida Department of Environmental Protection issued a warning notice to Aloha for not providing a sampling schedule to determine compliance with the US EPA's new Lead and Copper Rule. (Exhibit VAK-48). The US EPA through Rule 56-FR-2460 had required Aloha to submit a plan showing specific sampling sites that met the criteria of the Rule to the Department by June 1, 1992. On July 26, 1993 the US EPA in Georgia issued Aloha a notice of violation (Exhibit VAK-49), indicating the Seven Springs Home Water System and the Aloha Utilities water system operated by Aloha Utilities Inc. were in violation of the Safe Drinking Water Act. The letter warned Aloha: "These requirements are necessary to protect public health of each community and non-transient non-community water system". However, Aloha did not respond to that notice satisfactorily, effectively ignoring the original demand of the USEPA for a whole year. In September of 1993 USEPA Atlanta Office issued a notice of show cause and raised the specter of penalties up to $25,000 per day per violation per facility. (Exhibit VAK-50).

It was only then that Aloha submitted adequate number of samples for determination of the utility's compliance with the Lead and Copper Rule.

In 1997 the PSC staff, in accordance with FAC Rule 25-30.431(1), assessed the over all quality of service provided by Aloha derived from the evaluation of three separate components of the Water and wastewater operations, (1) Quality of the Utility's product; (2) operational condition of the Utility's Plant and Facilities; and (3) Attempts to address Customer Satisfaction. It found the quality of water service to be unsatisfactory, even though it met all the State and Federal Standards. (Exhibit VAK-51).

In 2002 Aloha appealed the Order No. PSC-02-0593-FOF-WU, specifically requiring removal of at least 98% of hydrogen sulfide in raw water even though it was an attempt to improve the quality of water in customers' domestic plumbing. If the Utility's concern was merely that 98% removal of hydrogen sulfide was technically impossible under certain circumstances and therefore should not be imposed on it because such a standard cannot be achieved under all circumstances, the matter could have been settled by negotiations between the utility, the PSC and the customers as was done subsequently. (Exhibit VAK-52). It seems more likely that the Utility appealed the orders because it was smarting under the use of the authority and the jurisdiction the PSC has to enforce such an order. The defiant language of Aloha's request for reconsideration of its appeal to the DCA, which was

denied, is indicative of the Corporation's approach toward oversight and regulation. (Exhibit VAK-53).

Aloha began to consistently exceed the permitted annual average day withdrawal of underground water in 1996. In 1998 during the Water Use Permit (WUP) renewal process, it was the understanding SWFWMD that Aloha would begin to utilize the interconnect with Pasco County and bring its existing withdrawals into compliance. The over-pumping continued and compliance notices were issued by the SWFWMD in 1999 and 2000. A notice of violation was issued on November 21, 2000 and a Consent Order was proposed on January 5, 2001. The final consent ordered contained a compliance plan (Exhibit VAK-54), but as far as I know this has not been put into effect even in 2004.

Q. DO YOU HAVE ANY EVIDENCE THAT SUGGESTS ALOHA HAS ACTED IN A MANNER THAT PREVENTED REGULATORY AGENCIES FROM TAKING MORE APPROPRIATE AND TIMELY ACTIONS TO IMPROVE WATER QUALITY?

A. I will cite a number of actions taken by Aloha, which seem to me to be inappropriate for a monopoly water utility to undertake. I have already mentioned that the FDEP had to file a suit against Aloha in the very serious matter of Aloha chronically dumping treated wastewater effluent into Lake Conley, even after it was warned not to do so. Aloha seems to delight in challenging regulatory agencies, such as FDEP, FPSC and SWFWMD to see

how far it can go against regulatory constraints that are appropriate for a regulated monopoly. Such legal challenges, which amount to a tactic of legal jousting, have delayed implementation of urgently needed regulatory action. One almost gets the impression, reviewing Aloha's tactics that it a corporation unwilling to accept responsibility to provide its customers with water, the second most necessity of life, such that its quality will remain stable in their domestic plumbing.

The distortion of the science of water processing by suppressing relevant information about the formation of elemental sulfur in Aloha's water processing has been referred to earlier in my testimony. Mr. Porter is a knowledgeable engineer "within the field of water chemistry, requiring not only specialized education and training, but a great deal of experience" as he has declared himself. (Exhibit VAK-55). His outright and emphatic claim that there is no sulfur formed and all hydrogen sulfide is converted to sulfate cannot be excused as that of a novice engineer who had a memory lapse for an academic or an irrelevant equation. This false claim resulted in the PSC not recognizing the *urgent need* to install upgraded methods to reduce copper corrosion or at least to recommend filtration of water processed by the sole use of chlorination to remove elemental sulfur. Mr. Porter's claim that the black water in toilet tanks is due to corrosion of the plastic flotation ball, repeated recently by Mr. Crouch, another engineer who has been hired as a consultant to speak at the first Customer Workshop organized by Aloha in June, 2004 is a demonstration of either ignorance or a willingness to use

inaccurate explanations to serve the utility's attempt to maintain that its processing method is satisfactory.

The copper corrosion control program requires that Aloha collect samples for determining copper levels from homes within its service area. Initially when the program was started Aloha was asked to submit a sampling plan for determining its compliance. Aloha did not submit this plan for a whole year so that the US Department of Environmental Protection had to warn Aloha of the serious civil and criminal consequences of noncompliance with this regulatory request. Aloha submitted those samples in 1993 in a fairly representative fashion from its service area at that time. However by the time the plan was approved and tests were conducted in a timely fashion, its service area had included subdivisions south of the Mitchell Boulevard area. Geographical localization of the sampling sites used in 1999 shows that a proportionate number of samples were not taken from this area. (Exhibits VAK-19). Aloha has given the excuse that it is not required to do so, because it has to collect samples only from areas which had lead pipes or use of lead solder in copper pipes. Samples for Lead and Copper Rule compliance testing for 2001 completely excluded the areas from which black water problems have been reported more frequently and more intensely. (Exhibit VAK-56). This is a serious matter because it gives a false impression of compliance when such conclusion may be very tenuous based on sampling sites that are not statistically relevant and representative.

The oft repeated claim of Aloha's engineer, its president and its legal advisors that water quality issues are experienced by an extremely small number of customers in spite of the admission to the contrary by Atty. Marshall F. Deterding in his letter of June 19, 1998 to Ms. Bayo, Director of Records and Reporting of the Florida PSC and the evidence contained in a survey conducted by the Utility submitted as an attachment to that letter (Exhibit VAK-57) is a deliberate distortion of demographic data which showed that over 25% of customers who responded to the survey were unhappy with the quality of water. The attorneys for Aloha in briefs before the judicial system of the State of Florida has stated, "The PSC, galvanized by a small fraction of Aloha's customer base and motivated to please Representative Mike Fasano (who lives in Aloha's service area and who has substantially built his political career upon the demonization of Aloha over the last seven years) and frustrated by its own political will, elected to 'punish' Aloha for these perceived water quality concerns". (Exhibit VAK-58). A more blatant accusation is hard to find, since the PSC had previously treated Aloha's lackadaisical approach to improving water quality with great restraint.

The attempt of Aloha to milk from its customers $659,000, which it failed to collect from builders is another example of an intentional attempt to pass on to the customers the financial consequences of its gross management failure. Blaming the PSC for its own failure to file appropriate documents in this matter and to notify builders of increased connection fees is an example of

Aloha's efforts to shift the responsibility it has to others who were innocent of any wrong doing in the matter. (Exhibit VAK-59).

In 1997-8, Aloha distributed printed information material such as "Water News", "Water Discoloration Information" which claimed that Aloha's water was "clean, clear and safe", and the distributed water met all State and Federal standards. (Exhibits VAK-13 and VAK-60). These documents also contained the statement that the number of homeowners who had water quality issues was small and was limited to a small area of Aloha's service area. The Utility accused "a small number of customers" of continuing "to demand that the FPSC take actions against Aloha Utilities despite a total lack of evidence to support them". The Utility had received black water complaints from 144 customers in Wyndtree and 44 customers within Chelsea Place in 1996 alone. (Exhibit VAK-61). Contrary to data collected by Aloha from a survey authorized by the PSC, Aloha's attorneys were still making similar claims in 2002 before the First District Court of Appeals in their effort to nullify the PSC orders of April, 2002 by insinuating that only 1/10 of one percent of customers were affected by poor quality of water, when that was merely the number of customers who made presentations before the PSC during that particular hearing. (Exhibit VAK-62). It is necessary to add up the numbers of all those who attended the many hearings and made presentations at them and filed complaints with the utility and the PSC to understand that there are many more customers who are dissatisfied with water quality!

An example of what appears to be gross technical management failure or deliberate neglect also needs to be brought to light. When I requested information about the basis on which Well 9 was brought on line in 1995 and whether a measurement of hydrogen sulfide level was done, I was only initially informed that raw water from the well had passed the smell test with a reading of less than 1 TON. Neither Aloha nor FDEP made available to me the information about any measurement of hydrogen sulfide level done prior to the well being used to supply drinking water to customers. It was left to the customers' persistence to find out that hydrogen level in the raw water from that well on May 12, 1994 was 4.3mg/l. (Exhibit VAK-63). I have calculated and shown (Exhibit VAK- 38) that the chlorinator at that well does not have the theoretical ability to convert such a high concentration of hydrogen sulfide completely to sulfate contrary to what Aloha has claimed about its processing method (Exhibit VAK-9), much less the higher amounts of hydrogen sulfide reported between April-July 2001. The failure to report to regulatory agencies inadequacies within the processing system is a gross violation of the Utility's obligation to FDEP and PSC as well as to the customers.

These instances demonstrate that Aloha has been unable, has refused, and has neglected to provide reasonably adequate service to its customers on a timely basis.

Q. **DO YOU HAVE A FINAL ASSESSMENT OF THE CREDENTIALS OF ALOHA TO BE A DRINKING WATER PROVIDER IN THE YEAR 2004?**

A. The indelible impression Aloha has left on a significant number of its customers who will testify here today and me is that it is a utility, which does not care for its customers' need for good quality drinking water. Aloha, in the minds of its customers, does not have the corporate culture necessary to recognize the need to subject itself to legitimate regulatory supervision as part of its responsibility as a regulated **monopoly** utility. It does not seem to understand that given the opportunity to make a generous return on its investment, it has to meet the legitimate needs of the customers to have water that remains stable long enough in the domestic plumbing for them to drink it, bathe in and wash their clothes in it, without anxiety and constant worry about the unpleasant characteristics that the water intermittently demonstrates. If the utility finds these demands of the customers too burdensome for it as a business entity, then the appropriate choice would be to leave this endeavor to neighboring utilities that have demonstrated the scientific knowledge, technical capability and management ability to do so.

In a nutshell, the petitioners have lost confidence in Aloha Utility as having the credentials to function as a customer oriented water utility that regards the quality of its product and its customer service as its primary concerns. The petitioners have come to the conclusion that Aloha is only interested in holding on to its service area and the ultimate financial benefit that will accrue

to the corporation, and does not care whether the water it provides remains drinkable in the domestic plumbing. During the last 10-15 years, Aloha has received a lot of "donations" of infrastructure paid for by customers as part of the cost of their homes, which includes development costs of these infrastructures that Aloha now claims **as its own assets.** Yet, Aloha has not spent any significant amount of dollars to improve its processing method or monitoring system to ensure that process control for the production of drinking water is adequate. It did not care to find out why other utilities, withdrawing water from the same Florida aquifer were using more sophisticated methods, including combination of methods for processing water. Instead of notifying its customers and regulatory agencies that its processing method with **the sole use of chlorination** was not adequate to prevent black water and work with them to upgrade processing method and facilities, it merely tried to get by with the legal claim that it met all State and Federal Standards for drinking water. Even now, while it is considering the installation of a new processing method, Aloha has not taken its customers into confidence about the adequacy of this new method to improve the quality of drinking water. As in the past Aloha has stonewalled enquiries for information that the customers have a right to know. Customers legitimately insist that they are entitled to know that their money is well spent since they would have to pay for the new installations through water rate increases. Aloha, on the other hand, seems to believe it has a right to act as the lord of the manor and its customers are not entitled to know whether they will receive

better quality water through appropriate processing facilities or get more adequate customer service.

In 1973 when Aloha Utilities Inc., was initially granted a certificate of authorization to become a monopoly water utility in the area which included the Seven Springs Area, the credentials that a corporation needed to be granted such a certificate was limited to the demonstration of adequate water source, ability to distribute the water and financial resources to pay the filing fee. In 1991 the scientific credentials a potable water utility needs to provide drinkable water changed significantly because of the recognition that Florida underground water that is deficient in oxygen has to be processed with much greater sophistication than the simple addition of chlorine to the source water. Most other utilities in the neighborhood of Seven Springs realized this need and adopted additional methods and increased process control to achieve the goal of better quality water. Aloha either through its ignorance or as a deliberate corporate policy decided that the legal minimum required by State and Federal standards was adequate and fought its customers and regulatory agencies on the basis of the letter of the law without considering the need to provide customers with water whose quality would not degenerate in domestic plumbing within a short period of time. It did not accept that the reversible oxidation of hydrogen sulfide to sulfur and sulfate was associated with the risk of water quality problems and concede the need for upgraded water processing. **It did not educate the customers and regulatory agencies about the imperative to have upgraded processing methods**. Instead it

allowed water of incompatible quality with the pipes, and which thereby could become unsatisfactory in domestic plumbing, to be delivered to the customers. It accused its captive customers who only wanted better quality water of political motivations and washed its hands of its responsibilities. In so doing between 1993 and 2004 by inaccurate science, by its unwillingness to cooperate with its customers to seek scientific solutions expeditiously and a lack of willingness to subject itself to regulatory supervision Aloha has made it impossible for the petitioners to continue to accept Aloha as their water provider.

Q. WHAT THEN IS YOUR REQUEST TO THE PSC AT THIS TIME?

A. As one of the customers of Aloha who have signed the petition submitted on July 15, 2002 I am requesting deletion of part of the service territory of Aloha in which they live (Exhibit VAK-64) contingent on their ability to become retail customers of Pasco County Utility. In deciding to make this switch, the petitioners and I are confident they will have a utility with a customer oriented management, which will provide higher quality water than they have received in the past from Aloha or will possibly receive from Aloha even with the new method that it is considering for installation. The customers are prepared to take the risk of transferring their loyalty to another provider of drinking water and wastewater, because through their county commissioners they will always have a voice in the management of the Utility unlike with a private company like Aloha. They will also have a management team committed to solving

technical issues on a scientific basis rather than by appeal to the minimum standards that Aloha has used as its benchmark for quality. Finally, they will have expeditious attention to problems of water quality that may arise without having to suffer the consequences of poor water quality while legalistic debates between the utility and regulatory agencies continue with no effective resolution of problems.

After ten years of constant requests for improvement in water quality and repeated efforts to get effective action towards that end through the utility and regulatory agencies, the petitioners and I have exhausted their patience and see no other solution to their status as captive customers of Aloha other than to obtain deletion of territory and seek another provider for their needs for better quality water.

We want better water NOW!

We are not prepared to wait any more.

Q. IF THE COMMISSION GRANTS YOUR PETITION TO DELETE TERRITORY WHAT WOULD BE THE IMPACT ON THE CUSTOMERS REMAINING WITH ALOHA?

A. I have considered a number of possible scenarios in this matter. The only negative aspect that I can think of is an economic one, namely they would be responsible for **all** the economic costs of a new method for water processing, which in their situation would merely be for compliance with the

chloramination requirement. Since only less than 20% of Aloha's customer base in the Seven Springs system is asking for deletion of territory, the proportionate increase in water rates will also be limited to that extent.

On the other hand, if deletion is provided for petitions included in Docket No. 020896-WS, the demand for water will fall considerably and Aloha will be able to meet the needs of the residual territory and remain within its Water Use Permit. This will immediately bring Aloha into compliance with its Consent Agreement with SWFWMD and bring an end to that litigation and the daily fine to which Aloha is now subject. More importantly, Aloha will not need to purchase water from Pasco County Utility at a high bulk rate and that will result in significant savings of approximately a million dollars a year to Aloha Utility as far as water acquisition costs are concerned. As most of the increase in water demands projected in Aloha's estimates for the future is more likely to come from the areas under consideration for deletion, Aloha will also not have to worry about whence the extra water to meet future demands will come. Further, it might also bring a sense of much needed tranquility to Aloha's corporate management in view of its President's statement that the customers in the petitions are "disgruntled customers". They will now be part of Pasco County Utility's customer base!

The customers who sought deletion will now get "what they asked for" and hopefully will be satisfied with their choice. According to our calculations, their water rates as retail customers of Pasco County also will not rise much

more than if they had stayed with Aloha and the utility had to buy water from Pasco County Utility at the much higher bulk rate and also pay for the cost of installing the new method estimated by Aloha at a minimum of 44% increase in water rates; hopefully the water quality will have improved to the point at which the customers from the deleted areas will feel that any additional cost is worth the improvement in quality.

To me, it looks as if granting of contingent deletion may be a win-win solution not only for all of Aloha's customers but also for all parties involved including Aloha and the regulatory agencies!

Q. DOES THAT COMPLETE YOUR TESTIMONY?

A. Yes.

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PRESENTATION BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

JANUARY 9, 2002

IN THE MATTER OF RATE INCREASE FOR
ALOHA UTILITIES

Honorable Members of the Public Service Commission,

I had the honor of becoming a citizen of the Sunshine State just five months ago. That I might have to address a Public Service Commission Hearing as one of my first community activities was farthest from my mind when my wife and I moved to New Port Richey in August 2001.

I am a Physician by profession and have in addition a degree in Chemistry and was a lecturer in Physical Chemistry before obtaining my medical degree. Today I stand before you to present evidence to show that the public water supply, which I receive through the pipes in my house, does not meet the "community standard" of potable water. When we were looking to retire in Florida and visited friends at Hunter's Ridge in New Port Richey, and stayed in hotels in Tampa and Port Richey, we enquired about the quality of water in this area, but had no reason to suspect that we would have a problem with our water supply in Wyndgate, a community on Mitchell Boulevard. In fact when we walked through the villa that **is now our home,** and checked the water in the toilet tank, I innocently assumed that the grayish discoloration was the result merely of stagnancy and nothing to be concerned about, since I could not imagine that a water supply in the state that lanches spacecraft would be **anything other than class A, a designation that has been given to Aloha Utilities. Neither did the staff of Aloha Utilities in**

our initial contact with them notify us that the community had any concerns about the appearance and quality of the water. I presume that "customer beware" is the motto!

Within a month of our arrival, after cleaning out the toilet tank to get rid of stagnant water, we realized that there was a problem of which we were not aware of, but which had been the focus of attention by the Wyndgate and Chelsea Place communities for many years. The history of this matter is well known to most of the audience and I do not intend to go into it. Suffice it to say that in spite of the affirmations by Aloha Utilities about its water meeting Federal and State standards for dissolved material and contaminants, the water that comes out of the tap does not. Persistence of black water, the intensity of its color changing from time to time, has been a source of concern to large numbers of the customers of Aloha Utilities.

In an attempt to allay my concerns, I first contacted Aloha Utilities to obtain information. I have been very impressed with their willingness to provide information in a generic manner about the processes that their staff declares to be the cause of black water. That data is also public knowledge and I do not need to reiterate it. But Aloha Utilities has been very slow in providing information about the **specifics of its own processing operations or in admitting that surrounding utilities have adopted methods for solving the problem.**

What is of concern to my neighbors and me is the unwillingness of Aloha to address the issue in a remedial manner instead of sidestepping the issue. Obviously, the Utilities in the surrounding communities had also been plagued with the same

problem as shown by the report of May 1998 **Copper Pipe Pitting Corrosion Study** submitted to the Board of Pasco County Commissioners. The Pasco County Utilities and the Utilities of the other surrounding Communities have effectively dealt with the problem of blackwater by reducing the tendency to corrosion induced by sulphides in the water by adopting remedial methods and by altering the alkalinity of water during processing.

The customers of Aloha Utilities alone have been left as an island of communities, which need to continue to face the psychological trauma and unknown health effects of blackish discoloration of water due to the presence of cupric sulphide in their water. This violates the principle of "Community Standards" which is more and more being accepted as a standard for Corporations whose activities affect essentials of life such as air, water and environmental quality.

The answer of Aloha Utilities as I understand is that there is no EPA or Federal Standards for clarity of processed water, and that they meet all the prescribed regulatory standards at appropriate intervals. That may indeed be so. Unfortunately, tests conducted and reported once in three months is hardly frequent enough to monitor the quality of water used for drinking, bathing and washing clothes. Nor is the claim valid that there is no known health effects to the presence of Copper sulphide in water and that the discoloration is merely of aesthetic concern. **'What you don't know cannot hurt you'** may have been an acceptable standard when physicians were recommending cigarettes to improve your health, but such a cavalier attitude is no longer acceptable.

I do recognize that preventing the formation of Cupric Sulphide in pipes is a complex matter and that it costs money to alter the characteristics of water in such a way that the tendency to form copper sulphide is reduced. There may be many ways to deal with the problem and I would even admit that there may not be a 100% effective solution. However, the neighboring communities have attained a high level of efficiency in this matter, which shows that it does not require the expertise of rocket scientists to achieve that goal. It only takes the willingness to adopt a methodology that is readily available along with financial resources to attain it.

In this context, as a member of the customer community served by Aloha utilities, I like to remind the Corporation not to forget that the situation can be addressed in a win-win manner for both the customers and the Corporation. The Corporation is ultimately a steward to the community in its task of extracting the water from the aquifer, processing it as necessary and distributing it to its customers. The relationship between the Corporation and the Community can be a friendly one in which both parties understand and appreciate the concerns of each other. As customers we can recognize that it costs money to process water and that in Florida, in the twenty-first century, we cannot produce high quality water that is cheap. The Corporation in its turn can recognize that the least common denominator of DEP and Federal expectations is not a ***gold*** standard for the product it delivers to the community and if given the financial resources to improve the quality of water, it should adopt the higher, but easily attained **'community standard'** as a commitment to its customers. Only in that way can friendly relationships between the Corporation and its customers be maintained. The monopoly status given to Aloha utilities to

create a business from the underground resources that belongs to the people is a sacred trust that should not be violated, especially when the Corporation is guaranteed a good rate of return for its investment.

Therefore, in the spirit of co-operation and as an expression of my willingness to work with Aloha Utilities to bring the quality of our water supply to the level of the 'Community standard' that exists in this area of Florida, I like to suggest to the Public Service Commission that it allows Aloha Utilities a **graduated and conditional** increment in its rate structure, if and only if Aloha makes a commitment to improve water quality so that costs involved in reducing the tendency to copper sulphide formation in the delivered water can be amortized over a reasonable number of years. The water rates in the service area of Aloha can then be brought up to the level, which Pasco County Utilities charges for its supply as long as the water provided by Aloha Utilities also meets the same standards. Further in as much as the customers of Aloha Utilities do not have a choice about whence they get their water supply, I would request the PSC to mandate that compliance with 'community standards' be independently monitored by methods, which are currently used by the Pasco County Utilities.

Thank you very much for the opportunity to address you.

New Port Richey

V. Abraham Kurien, M.D.

V.ABRAHAM KURIEN, M.D
1822 Orchardgrove Avenue,
NEW PORT RICHEY, FL 34655
(727) 376-9747

MR STEVEN WATFORD,
President,
ALOHA UTILITIES INC,
6915 Perrine Ranch Road,
NEW PORT RICHEY, FL 34655

January 14, 2002

Dear Mr Watford,

I am glad to have had the opportunity to meet you, your technical and legal staff during the PSC Hearing held on Jan 9-11 2002 on ALOHA UTILITIES' request for a rate increase.

I appreciate very much your commitment to the formation of a Citizens' Committee to advise Aloha Utilities about the quality of water that they receive and of ways to improve them such that they will meet the 'Community Standard' in the surrounding area of Florida. I will be, as requested by you, willing to help you with the formation of this group and spearhead its activities. I am sure that this will help in the creation of a win-win situation for both Aloha Utilities and the communities receiving water supplied by it.

Chairman Lila Jaber's remarks at the hearing supported the creation of such a Citizens' Committee. In order for us to be effective with the least delay and to make proposals to the PSC before its final decision date of 02 April 2002, I would urge you to contact me as soon as possible so that I can go ahead to identify members from the different communities in the Seven Springs Area to serve on the Committee.

Looking forward to hearing from you,

Yours sincerely,

V. Abraham Kurien, M.D

V. Abraham Kurien
1822 Orchardgrove Ave
New Port Richey, Fl 34655
(727) 376-9747

Mr Stephen Watford,
President, Aloha Water Utilities
6915 Ranch Perrine Road
NEW PORT RICHEY, FL 34655

January 17, 2002

Mr Watford,

Thank you for your letter of January 15, 2002. As requested by you, I am sending an outline of my proposal for the creation of a Customers' Advisory Board or Committee to help you solve the 'black water' problem faced by customers in the Seven Springs System.

I look forward to a meeting with you at the earliest possible date to form this group so that both the Aloha Utilities and the customers can be seen as proactive towards a win-win solution.

I look forward to hearing from you.

Yours sincerely,

V. Abraham Kurien

V. Abraham Kurien

AIMS OF A CUSTOMER ADVISORY BOARD

a. To avoid confrontational politics

b. To recognize the Company's willingness to involve customers in solving the problems everybody recognizes to exist, without wasting time apportioning responsibility or blame

c. To create a monitoring system to evaluate effectiveness of methodology being used by Company to resolve issues

d. To identify the ***probable rather possible causes*** for the problems encountered and to propose hypotheses, which can be tested scientifically.

g. To establish methods of co-operation between Aloha and its customers to deal with the effects of identified causes.

h. To prevent other Communities who become customers of Aloha Utilities from experiencing similar problems by alerting the Company and the builders

i. To work towards establishing building codes that take into account the nature of water available in this area of Florida

j. To encourage DEP to establish standards for drinking water supply that are relevant to characteristics of raw water found in specific sites.

FORMATION OF CUSTOMER ADVISORY BOARD:

1. Dr Kurien to serve as its Chairman: He will be a nonvoting member, except to break voting ties

2. The Board will consist of no more than 7 members

3. Representation to be available to all organized Communities within the Seven Springs Service area of Aloha Utilities

4. The Meetings of the Board to be always attended by two representatives of Aloha

5. All decisions, as far as possible, to be made by consensus

6. Minutes to be kept of all meetings and forwarded to the Public Service Commission, the DEP of the state of Florida in Tampa and the Administrator, Drinking Water Program, Bureau of Water Facilities Regulation of the State of Florida in Talahasse.

7. No information from these discussions will be made available to the media. Confidentiality is an essential ingredient for success.

8. The Board will meet as frequently as necessary till the end of March 2002, and subsequently at a minimum of once in 3 months.

9. The immediate task of the Board will be to address the following issues:

   a. Sediments in water before it enters the domestic supply: how to reduce it

   b. Dissolved materials which precipitate out in domestic plumbing: how to eliminate or reduce it

   c. Possible health consequences of ingesting water containing Copper Sulphide

   d. The extent of corrosion of Copper pipes and methods to passivate it.

TRANSCRIPT OF PART OF

TELECONFERENCE ON JANUARY 31, 2002

PSC FACILITATOR: BEV DE MELLO

PARTICIPANTS

ATTY STEVE BURGESS OF OPC, DR ABRAHAM KURIEN, ALOHA CUSTOMER
ATTY MARTY F. DETERDING, MR STEVEN G. WATFORD, PRESIDENT OF ALOHA

Facilitator (F:) I appreciate your patience in trying to solve the mysteries of my conference call. I wanted to just quickly introduce myself. I'm Bev DeMello. I'm the Director of Consumer Affairs for the Public Service Council (PSC). I just wanted to welcome you here today and I just wanted to make sure, Dr. Kurien

Dr. Abraham Kurien(AK:) Yes, I am here.

F: Alright, Attorney Burgess(SB:) of the Office of Public Counsel (OPC)

SB: Here

F: Marty Deterding (MD:)

MD: Yes.

F: Representing Aloha and of course, Mr Steve Watford (SW:), owner and...what is your official title?

SW: President, not owner.

F: Of Aloha Utilities.

F. The purpose of today's call, I am here to facilitate an initial meeting of Dr. Kurien, the OPC, and Aloha Utilities for some discussion about a possible citizens group to work with Aloha Utilities. That's basically my purpose on being here on the call today.

The ground rules, to set a couple of ground rules before we start. I am a facilitator, I'm not a part of this meeting, I mean as far as the Citizens Group. I'm not a part of that. I'm just here to assist on facilitating between the citizens and this group that wants to work with Aloha. If you don't mind, I'm going to ask for a couple of ground rules. One, is to speak one at a time and two, is to listen to all ideas without comment while the ideas are being expressed and before we agree on those that I've mentioned are there any other possible rules of courtesies that anyone else would like to bring up?

Okay, hearing none, can we agree on those two ground rules?

AK: Yes, indeed.

?: Sure

?: Yeah

F: Okay, then we'll go ahead and move into why the call is being held today. There was a reference at the Aloha hearing the first day we had the hearing, which was Wednesday, January 9th and I was looking back thru the transcript this morning and there was a reference made to a possible community task force

or community partnership or citizens group. All three words were used, between the customers and Aloha. Dr. Kurien. I believe during your, when you were speaking, you were asked if you would be willing to serve on something like this. It wasn't really ever defined. Is that correct?

AK: That's correct and let me take the opportunity to thank everybody who has agreed to participate in this conference call because I think as the person who put forward this idea I'd like to take the opportunity to thank everybody.

F: Thank you. And Mr. Deterding also mentioned the formation of a Citizens Action Committee (CAC), which Aloha had already been in the process of discussing.

MD: Right. In fact Steve Watford had come up with the idea a couple of days before the hearing when, we were talking and had said that because of Dr. Kurien's desire to try and get together and get some communications up and his knowledge in areas that might have relevance to the water chemistry issue, that he might be a good person to participate in that.

F: That's kind of what the transcript read that I had.

I just wanted to, before we get into discussions, offer my own, and I know, some of you might have served on citizens advisory groups, and I'll give one example of one I recently served on with Leon County. It was a CAC for building a landfill in Leon County and basically the citizens that were appointed to that committee, in other words, did not go out and do technical work. We did not go out and study the landfill type things. They had the actual County engineer department, did kind of initial studies and then we became involved as a kind of conduit of citizens with the County Commissioners. So we were there to sort of clarify issues and help inform others of what was being discussed during these meetings and how we could get the word out. So I

don't want to temper the meeting today but I was just thinking about that one example about a group that I recently served on. Kind of the primary purpose of that was to help the County Commission decide, better decide, on issues. But again, I was not a technical, I did not know everything there was to know about how to site a landfill.

MD: And we certainly, this is Marty, and in my discussions with Mr. Watford and the representatives of the utility, we certainly are not looking for any kind of technical advisory committee. In fact, we don't see this as involving ultimately, anybody but the customers and Aloha. Not Public Counsel, not anybody else, not the Commission. The idea we had and the idea that we were putting forth.

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F: Okay, well then Dr. Kurien, if you wouldn't mind, do you mind if Mr. Watford going ahead and proceeding with that?

AK: No, let him go ahead and tell us what he has been thinking about or has done in the past so that I can then give my ideas about it, which may be (interrupted by facilitator)

F: That sounds great. Alright Mr. Watford and Mr. Deterding.

SW: Well Marty, do you want me to go?

MD: Yes, please.

SW: Okay. Well basically what we had envisioned as Marty somewhat mentioned and as you mentioned Bev is a very similar concept. **We're not looking basically for a technical advisory board. We certainly probably have more experts involved in these case than we can all afford and you know and I guess we need to clear up kind of at the outset, we're looking at this as a long term, hopefully a permanent arrangement. This is not something that is being formed as relates to this case because basically this case is done, and it will be you know, the lawyers are in the process of preparing their briefs but as far as testimony and so forth goes, that door is basically closed.**

With all that said, I mean we're looking to establish something that will run the long term and provide a benefit certainly to our customers but to us, as well as being able to sense, to get a direction of their desires and needs and so forth. We just have some stuff kind of roughed out here and basically and in a general sense s it relates to the goals clearly the first and foremost goal is to establish and improve communications between the company and its customer base.

The second thing, and I just want to emphasize the need to try to create, I guess a productive avenue for the dissemination of issues that are confronting Aloha and seeking cooperation and assistance from it's customers in solving those issues. I mean when an issue comes to the forefront, it affects both the customer and the company, somewhat in different ways but certainly wherever the outcome ultimately ends up there is an effect that affects both of those parties and our fundamental desire is to have happy customers. And um, to the extent to which we can do that, certainly realizing that with the framework there are rules, there are regulations and everybody can't have their own custom water source but within obviously the frameworks that exist it certainly would go a long way we believe, to somehow doing that in cooperation and with the assistance of our customers in the process.

And I guess the third thing would be for us to, again in cooperation with the customers, be able to move forward not only maintaining compliance with all the rules and regulations but to also adequately be able to plan for the future. And that's both in terms of future rule requirements that we all know are coming, as well as growth issues, as well as customer service sorts of issues due to new technology. **And you know the thing that comes to mind, at the hearing was the question whether we would be interested in doing automatic debit for customers.** And that just kind of clarified in my mind, at the time we had already investigated that, thought that we had looked at that adequately. But you know, our customers don't know that we looked into that and that's a failing on our side of not communicating even things that we don't do but have considered and the feedback we've gotten and why it wouldn't be productive to pursue. At that moment at the hearing it just dawned on me that if we had communicated that better to the customers, and we're not adverse to doing that and we have the ability to do it, we were just told by the people who should be in a position to know about such things that we would have very, very, little interest in that. Certainly that's something that this group could go to its representative group of customers and solicit information.

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F: All right. Let's let Dr. Kurien, since he did talk at the hearing and was specifically asked if he'd be interested in serving. Dr. Kurien, if you would like to make your statement, right now would be a good time.

AK: Basically I'd like to divide my statement in two. One is a neutral statement about how committees of this kind can be effective. And then the second part which is basically my concerns about it as a customer.

In terms of the first one, I think the basic approach to forming advisory boards of this kind is to first avoid confrontational politics because if people are going to relate to each other as adversaries, nothing is going to come out of it. Therefore, the first thing is to resolve adversarial stances and try to deal with it as a problem we need to work together to solve. That's the first principle.

The second principle is to recognize the willingness of both parties in this particular case, the Aloha Utilities and the customers recognize that only by working together that they can ultimately find the solution, which is at least satisfactory to both sides to a certain extent. Because if you don't agree to that, then you will go back to adversarial politics again.

And the third thing is that it is necessary is to create a monitoring system with the confines of the committee to see if any method that the board uses to solve problems is being effective. So you need three basic structural characteristics and that is true whether it is this particular area or any other area. So you need those three particular aims recognized by both parties before you can even start.

The second point, and I'm going to say this as a customer, is that the unique situation in which the customers/Aloha Utilities relationship is structured, which is that of a monopoly. Because if it were not a monopoly, then the majority of customers would say 'if we're not getting the right kind of water we wanted, we'll go to WalMart and get water or we'll go to Pasco County and get water. So the unique characteristic of this relationship of Aloha vs. its customers has to be recognized because if that is not recognized, and certain subjects are off the table in terms of

discussing them, then customers would immediately recognize that they have no stake in the matter because they cannot be ultimately effective.

The next thing is that there must be some legitimacy that is coming out of the discussion. Because if we cannot, as a customer, bring up issues which the company has taken off the table, if it affects, for example, the quality of the water and the cost of water, which are two main concerns for the citizens, then the customer will say 'why are we wasting our time discussing this with a company which has take those two items off the agenda.'

So, I think it becomes very important to include that and if those two items then necessitate further investigation into technical aspects or economic aspects, even though the customers may not be experts in the situation, they should be able to call in experts in the field who are not totally controlled by the utility. Because, we should be able to call in independent experts, because otherwise again we go back to the structure again of monopoly/customer relationship and that will not ultimately solve the problems.

The third or fourth, I think, we need to recognize that for this product that is being delivered, there is a community standard. Because that is ultimately what the customer is looking for because he looks around and says 'here is so many other companies delivering water and charging for it. Why are we different from the rest of the community?' That is the question that a company needs to address if they want to be a good corporate citizen of the community. I think if that participation is not adopted by the utility, then it's a non-starter. I just want to alert all of us to that reality because Marty and Steve said, we cannot have discussions about technology in the situation; because how do we then proceed? Because if you cannot consult with the neighboring communities or neighborhood utilities which have both rate structure differences and water quality opportunities. We need to address that as the two major concerns. While it is good to be able to say, "I can have my money

taken out by a debit system", that is not critical to the customer. It may be critical of an advantage to the company. So we need to define what are the issues that we are really going to discuss; which are central issues. There are a number of peripheral issues, which may be .....*(End of first side of tape)*

(Other side of tape begins) **.....to define what the central issues are because I don't think that the company, that Aloha Utilities, should be able to define what the agenda is. You know it's like the negotiations between two warring parties. You know you can't have Israel and the Arabs agree to something if one group says we cannot discuss this. That is the whole point of negotiations. If you want to create a win-win situation in any negotiations, then you have to say there is nothing off the table. Everything has to be taken into consideration. We will and that's why I said in a letter to Steve, I said I will act purely as a chairman of a committee because there should be somebody who can be considered neutral in the situation. I'm willing to separate myself from the community in which I live and look at it as an independent person because I have a certain past in terms of having done it. If that concept is not honored I don't think the citizens would find a citizens advisory committee very meaningful.**

Highlighting by Dr Kurien

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue
NEW PORT RICHEY, FL 34655
Tel: 727 376-9747

Mr Stephen Watford,
President, Aloha Utilities Inc.,
6915 Perrine Ranch Road,
NEW PORT RICHEY, 34655

February 1,2002

Dear Stephen,

RE: CONFERENCE CALL ON
JANUARY 31, 2002

First of all, I like to place on record my appreciation to all those who participated in the conference call to explore the possibility of creating a Citizen Advisory Committee (CAC) for Aloha Utilities. I want to especially thank Ms Bev DeMello for her role as a facilitator.

I hope you will follow-up without delay the agreed upon suggestion for Aloha Utilities (AU) to invite representatives of all the Home Owners' Associations (HOA) in the service area of AU to a facilitated initial meeting. At this meeting the citizens and the Utilities can place on record items that each party considers appropriate for an Advisory Committee to discuss and make recommendations to the Utilities for appropriate action. This meeting between HOA and AU will also make decisions about the membership of the CAC.

You had in your letter of January 14 invited me to make suggestions for the success of the activities of a CAC. In the light of our discussions yesterday, it is fairly obvious to me that there is likely to be a significant difference between the points of view of AU and the HOA about what items are relevant for discussions by the CAC. In itself, that is not surprising. Since there has been a history of adversarial relationships in the past between AU and the citizens of the Seven Springs area, it is to be expected that the issues considered to be 'core issues' by one party are perceived as peripheral by the other. Unless there is significant accommodation and acceptance of each other's perspective, it is unlikely that the CAC even if formed

will be effective in making meaningful recommendations for action. More importantly, the AU will not be willing to act on the recommendations made.

From the point of view of the customers of AU of the Seven springs area, I feel that they are willing to accept that the cost of water has to rise in a gradual and steady manner for a number of years if it is coupled with a guarantee that the problem of 'black water' will be addressed in a remedial way and subject to evaluation by an independent scientific authority. That was the gist of the presentation that I made at the PSC hearing on January 9, 2002.

If this basic proposition is acceptable to the AU, I would indeed be willing to serve on a CAC. In the absence of an openness to **even consider** the possibility that AU will look into remedial measures for 'black water' other than the claim that it is not the responsibility of the utility, I do not feel that it is worth the time and effort for me to serve on such a committee.

I have come to the arena of the interaction between the customers of the AU and the Utility in the spirit of scientific accuracy, the need for friendly relations between providers and clients of services and a sense of fairness that is supported by the American Constitution. If these realities of human relationships are not the motto of the AU and its management, in spite of it being guaranteed a fair return for its investment, then we do not have the basic common ground necessary for a negotiated settlement of our differences.

I do hope that the possible bias in my judgement of the situation will be corrected by a positive reply from you.

I look forward to hearing from you without delay.

Yours truly,

V. Abraham Kurien

V. Abraham Kurien, M.D.

V. Abraham Kurien, MD
1822 Orchardgrove Avenue,
NEW PORT RICHEY, FL 34655-4716
(727) 376-9747

Representative Mike Fasano,,
402 South Monroe Street
1102 The Capitol,
Talahassee, FL 32399-1300

February 13, 2002

Dear Rep. Fasano,

RE: CITIZENS ADVISORY BOARD
FOR ALOHA UTILITIES

As you are aware, during the PSC hearing on Aloha Utilities' Rate Request held in New Port Richey on January 9-11, I made the suggestion of creating a Citizens' Advisory Board to help Aloha Utilities solve the 'black water' problem, which the customers of the Utility in the Seven Springs System had been experiencing for many years. The President of Aloha Utilities Mr Watford and Chairman Lila Jaber endorsed the idea and the communities served by Aloha Utilities were looking forward to some effective action.

Immediately after the hearing, I wrote to Mr Watford on two occasions and after failing to receive any positive response towards the creation of the Board, contacted PSC staff to facilitate the formation of the Board. A conference call was arranged among Mr Watford, Atty Diedering, Atty Steve Burgess, Public Counsel and myself, facilitated by Bev DeMello, Director of the Division of Consumer Affairs. Mr Watford and Mr Diedering seemed totally unwilling to place the 'black water' problem on the agenda for discussion by the Advisory Board. I indicated that I would not be willing to consider serving on the Board if core issues important to Aloha Utilities or the consumers were excluded from the agenda. I wrote to Mr Watford to find out if his position about excluding discussion of possible solutions for 'black water' was totally nonnegotiable, but have not received a reply so far.

Under these circumstances, I do not see any possible avenues for further meaningful discussions with Aloha Utilities by the communities affected by the 'black water' problem. We will have to rely exclusively on actions the Public Service Commission, the Department of Environmental Protection or the legislative branch of the Florida State Government can and will take individually or collectively to address the grievances that have been repeatedly brought to their attention by the customers of Aloha Utilities.

I look forward to your intervention in this matter, because I know that you are very concerned about protecting the legitimate health, financial and aesthetic concerns of the citizens of your constituency.

Yours sincerely,

V. Abraham Kurien

V. Abraham Kurien

Aloha Utilities, Inc.
6915 Perrine Ranch Road
New Port Richey, FL 34655
(727) 372-0115 Fax (727) 372-2677

February 15, 2002

Mr. Mike Fasano
State Representative, District 45
8217 Massachusetts Avenue
New Port Richey, Fl 34653-3111

Dear Mr. Fasano:

I received your letter of February 14, 2002, concerning the formation of the Citizens Advisory Committee that was discussed at recent hearings with the Florida Public Service Commission. Contrary to the statements made in your letter, we are preceding ahead the formation of the Citizens Advisory Committee as we committed to do at the hearing and since then again in a conference call on January 31, 2002. On January 14, 2002 I sent a letter to Dr. Kurien thanking him for his participation in the customer hearings the prior week and requesting input from him concerning his thoughts on the best way to form the Citizens Advisory Committee to try and insure the best likelihood for success. I also told Dr. Kurien that I would be following up with him shortly to go over his thoughts. A copy of that letter is attached.

On January 31, 2002 a conference call was held, the participants in the call were Dr. Kurien, Steve Burgess of the OPC, Beverly DeMello, Director of Consumer Affairs, PSC, Marty Deterding and myself. During that call we laid out the outline for how the committee was going to be formed and how we were going to proceed. We discussed many of the suggestions of Dr. Kurien, that he had previously provided at my request, the group also discussed the thoughts that we had concerning the goals and formation of this committee. We also outlined a set of goals for the committee and discussed each and every one of them. The goals of the committee at this early stage were stated as follows:

1. To establish and improve communication between the company and it's customers.
2. To created a productive avenue for the discussion of issues confronting Aloha and seeking cooperation and the assistance of its customers in solving those issues.
3. For Aloha, in cooperation with it's customers, to be able to move forward with maintaining its ongoing compliance with all rules and regulations and adequately plan future needs, both in terms of future rule requirements and growth issues.
4. To allow Aloha, to receive constructive input from customer representatives about **any issues** deemed relevant by any party, to enable Aloha to better understand the desires of it's customers and to be able to better address those needs.

During the conference call, Dr. Kurien was told on several occasions that the issue of water quality was **not** "off the table". We also decided that the committee, after it's formed, should be who decides what the relevant issues are. We are seeking input from our customers and we feel that it would be inappropriate for us to dictate what their concerns are and feel its much more appropriate for the customers representatives to make those decisions.

We then discussed steps that we will be implemented in forming the Citizens Advisory Committee. We discussed the number of people that should be on the committee. We have already begun updating our records for current contact information for the heads of the various associations in our service area. We will be contacting those

individuals very soon. We also stated that in our upcoming newsletters we will be announcing the formation of this committee to each and every customer of Aloha. We will encourage our customers to contact their Home Owner's Association representatives with any concerns and issues that they might want brought to the table.

You state in your letter that "we have demonstrated that we are not interested in addressing the concerns of our customers". Nothing could be further from the truth, which is exactly why we are proceeding with the formation of the Citizens Advisory Committee. As I stated at the hearing, I do not have any objection to Dr. Kurien being on the committee and he could be an asset. However, whether he chooses to participate or not, we are moving ahead with the formation of the committee as outlined during our conference call.

I would suggest, that if you have any further concerns in this regard, you might discuss them with Beverly DeMello or even Steve Burgess from the Office of Public Counsel who were present for the conference call. At the conclusion of the call it was agreed upon by all parties that this was the course under which we were going to proceed and that is what we are doing.

Sincerely,

ALOHA UTILITIES, INC.

Stephen G. Watford
President

SGW/pjy

Attachment

Cc: The Honorable Members of the Florida Public Service Commission
Stephen C. Burgess, Office of Public Counsel
Beverly DeMello, Director of Consumer Affairs Florida Public Service Commission
Dr. Abraham Kurien
Marshall Detering, Rose, Sundstrom & Bentley, LLP

Aloha Utilities, Inc.

6915 Perrine Ranch Road
New Port Richey, FL 34655

(727) 372-0115 Fax (727) 372-2677

April 11, 2002

Mr. Irving Gaines
1551 Boswell Lane
New Port Richey, FL 34655

Re: Wyndgate Homeowners Association
Citizens Advisory Committee

Dear Mr. Gaines:

We contacted you directly by letter on March 8, 2002 in reference to our formation of a Citizens Advisory Committee (C.A.C.). We had proposed an initial meeting to take place on April 17, 2002 at 10:00 a.m. However, the Florida Public Service Commission (FPSC), in an order yet forthcoming from them, appears to be intervening in the Company's attempt at the formation of this committee. In a staff recommendation recently approved by this Commission there were many rules and requirements to be imposed by the PSC on the formation of such a C.A.C. To the best of our knowledge the PSC has never before asserted jurisdiction in the realm of Customer Advisory Committees, but it appears they now intend to do so in our most recent case. Their proposed requirements are well beyond and in several instances at variance with our plans. Therefore, until the Commission's final order is issued and becomes final we will have to delay the formation of this committee. The PSC's proposal imposes many responsibilities, both for the company and the customers that will actually serve on the committee, and until all of these issues are finally resolved it would not be productive to proceed at this time.

We do appreciate your indicated willingness to serve on the committee and wish this unfortunate problem had not arisen, but it was beyond our control and was totally unexpected. We still look forward to working with you in the future when all these issues are ultimately resolved. Once again, thank you for your cooperation. We will contact you again when we are ready to proceed.

If you have any further questions, please do not hesitate to contact our office.

Sincerely,

ALOHA UTILITIES, INC.

Stephen G. Watford
President

cc: Dr. V. Abraham Kurien

SGW/pjy

Letters/02hou/wyndgate cancel

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-8
Page 1 of 6

To: JOHN STARLING
PSC
413 6953

FROM: MIKE LEROY
DEP
921 9447

Turbidity Formation During Hydrogen Sulfide Chlorination

Troy Lyn
Environmental Engineer
CH2M Hill
Deerfield Beach, FL

James Taylor
Professor of Engineering
University of Central Florida
Orlando, FL

Robert Powell
Water Quality Manager
Pinellas County Utilities
Largo, FL

ABSTRACT

This study was conducted to identify the effects of hydrogen sulfide (H_2S) chlorination on sulfur turbidity formation from a groundwater drinking source. The purpose of this research was to determine the conditions under which chlorine would completely oxidize H_2S and limit the production of sulfur turbidity below 1 nephelometric turbidity unit (NTU). These studies showed that H_2S is completely oxidized at a molar ratio (MR) of 2 chlorine to sulfide (Cl_2/S^{-2}) in distilled water. However, sulfur turbidity was produced during complete H_2S chlorination in all reaction conditions common to conventional water treatment. Sulfur turbidity formed in the laboratory by chlorination did not settle and was still observable after 7 days. These studies also showed that chlorine reacted with H_2S before organic precursors to produce trihalomethanes (THMs).

INTRODUCTION

H_2S is commonly removed partially by aeration and then completely by chlorination. Conventional aeration removes approximately one-third of the influent concentration of H_2S. The remaining H_2S is then typically oxidized by chlorine gas. Although this treatment scheme successfully removes H_2S, chlorination produces potentially troublesome by-products. For example, the chlorination of H_2S could produce elemental sulfur (S°), resulting in black water (iron sulfide and/or copper sulfide) or excessive turbidity (greater than 1 NTU) in the finished water. Trihalomethanes resulting from the use of chlorine is another by-product of concern.

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OBJECTIVES

The objectives of this study were to determine what reaction conditions (pH, time, Cl_2/H_2S dosage ratios, and dissolved oxygen [DO]) could be manipulated to ensure complete sulfide destruction and minimize turbidity formation. From the literature, it was obvious that sulfide concentration, chlorine dose, pH, and contact time play an important role in the oxidation of sulfides. The effect of DO was considered because some treatment plants employ pre-aeration.

EXPERIMENTAL PROCEDURES

The study consisted of a series of laboratory and field batch tests. The laboratory tests were used to characterize H_2S oxidation and sulfur turbidity formation in distilled water. Field tests used untreated groundwater containing H_2S from the Keller I Water Treatment Plant in Pinellas County, Florida. Field tests were used to validate the laboratory study findings and determine the conditions governing THM formation.

The laboratory batch test used distilled water spiked with sodium sulfide, calcium hypochlorite, hydrochloric acid, or sodium hydroxide. Sodium sulfide was used as a source of H_2S. Calcium hypochlorite was used as a source of chlorine. Hydrochloric acid and sodium hydroxide were used in an attempt to control the reaction pH between 6 and 8. Theoretical volumes of hydrochloric acid or sodium hydroxide were added to reach a desired pH based on the assumptions that the reactions between Cl_2 and H_2S were described by the simplified equations below.

$$(1)\quad Cl_2 + H_2S \Longrightarrow S + 2H^+ + Cl^-$$

$$(2)\quad 4Cl_2 + H_2S + 4H_2O \Longrightarrow SO_4^{-2} + 10H^+ + 8Cl^-$$

However, this method did not result in the desired pH. The reactions of Cl_2 with H_2S were more complex than those described by equations 1 and 2. The pH was therefore adjusted by trail and error and ranged from 3 to 11.

In the laboratory experiments, sulfide concentrations were spiked at 2 milligrams per liter (mg/L) and 4 mg/L as S^{-2}. Chlorine was dosed at MRs of 1, 2, and 4 Cl_2/S^{-2}. The values of pH ranged from 3 to 11. DO was maintained at both high (DO > 6 mg/L O_2) and low (DO < 0.2 mg/L O_2) levels for MRs of 1 and 4 Cl_2/S^{-2}. At a MR of 2 Cl_2/S^{-2}, only high DO levels were tested.

The field experiments were similar to the laboratory experiments except that additional MRs of 8 and 16 Cl_2/S^{-2} were investigated. The natural sulfide concentration of approximately 1 mg/L S^{-2} was used instead of sodium sulfide. The pH values for the field experiments ranged from 6 to 8 due to the buffering capabilities of the natural water. Because the field samples contained natural organic substances with which the Cl_2 could react, samples for THM analysis were taken.

RESULTS

Laboratory Results

Laboratory tests showed that H_2S was completely destroyed by MRs of Cl_2/S^{-2} greater than 2 within 1 minute at all experimental conditions tested. The first available sample was analyzed after 1 minute. Complete oxidation of H_2S could have occurred before 1 minute. Figure 1 shows the sulfide remaining after chlorine was dosed at MRs of 1, 2 and 4 Cl_2/S^{-2}. The incomplete oxidation of H_2S at a MR of 1 Cl_2/S^{-2} indicates reaction products, such as SO_4^{-2}, other than described by equation 1.

When H_2S was completely oxidized by chlorine at MRs greater than 2 Cl_2/S^{-2}, the formation of sulfur turbidity was observed. In the laboratory test, only sodium sulfide, calcium hypochlorite, hydrochloric acid, and sodium hydroxide were added to distilled water; therefore, only elemental sulfur could have caused the turbidity.

The formation of turbidity was found to be a function of initial H_2S concentration, reaction time, pH, DO, and the chlorine to sulfide MR. An increase in initial H_2S concentration increased turbidity formation as shown in Figure 2. As reaction time increased turbidity also increased as shown in Figure 2.

An increase in pH also increased turbidity formation as shown in Figure 3. No turbidity formation was observed at pHs less than 3.5. However, at pHs of conventional treatment systems of 6 to 8, turbidity formation was always observed at all MRs and DO levels tested. High levels of DO (DO > 6 mg/L) produced lower turbidity than lower levels of DO (DO < 0.2 mg/L) under same treatment conditions as shown in Figure 3.

Increasing the MR of chlorine to sulfide from 2 to 4 reduced turbidity formation but did not eliminate turbidity as shown in Figure 4. Once turbidity was formed, it persisted over several days and was not readily settled or oxidized as shown in Figure 4.

A log variant statistical model was developed by regression from the laboratory data that described turbidity as a function of the five independent variables shown in equation 3. Only data sets for MRs of 2 and 4 Cl_2/S^{-2} in which complete oxidation of H_2S occurred was used in the development of the model. To better represent actual water treatment plant chlorination practice, the MR term was changed to a chlorine dose term.

$$\text{TURBIDITY} = 0.363[H_2S]^{4.062}[pH]^{1.578}[\text{TIME}]^{0.579}[DO]^{-0.226}[Cl_2]^{-2.043} \quad (3)$$

Where
- TURBIDITY = Turbidity, NTU
- H_2S = Initial H_2S concentration, mg/L S^{-2}
- pH = pH
- TIME = Time of reaction, minutes

DO = Dissolved oxygen content, mg/L O_2
Cl_2 = Chlorine dose, mg/L Cl_2

As shown by the laboratory data and verified by the signs of the exponents of the statistical model, increasing initial H_2S concentration, pH, and time increases turbidity formation while increasing DO and MR of Cl_2/S^{-2} decreases turbidity formation. The coefficients of equation 3 suggest that the factors affecting turbidity in descending order of importance are initial H_2S concentration, chlorine dose, pH, time, and DO. Derivatives of the statistical turbidity model suggest that aeration prior to chlorination is the most effective means of reducing turbidity formation.

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Field Results

The field batch and laboratory batch experiments produced similar results. H_2S was completely destroyed at molar ratios slightly greater than 2 Cl_2/S^{-2} as shown in Figure 5. The MR needed to completely destroy H_2S within 1 minute was higher in the field experiments because of other demands in the natural water. The same turbidity trends noted in the laboratory for pH, time, and Cl_2/S^{-2} MR in the field were also observed in the field as shown in Figures 6 and 7. The effect of DO was not observed in the field because all field test were conducted with DO less than 1 mg/L.

The field data sets containing MRs of 4, 8 and 16 Cl_2/S^{-2} were evaluated using the statistical model of equation 3. Since MRs of 1 and 2 Cl_2/S^{-2} did not completely destroy H_2S in the field experiments, these data sets were not used in the testing of the model. Complete destruction of H_2S occurred at a MRs greater than or equal to 4 Cl_2/S-2 or 9.76 mg/L chlorine dose for a 1.1 mg/L initial H_2S concentration. Since large MRs of 8 and 16 Cl_2/S^{-2} overdosed the initial sulfide concentration and the data indicated that no more turbidity removal could be accomplished at MRs higher than 4, their corresponding chlorine doses were not used. Instead a chlorine dose of 9.76 mg/L Cl_2 was used.

Figure 8 shows the predicted verses observed turbidity from equation 3. For MRs of 4 and 8 Cl_2/S^{-2}, the actual versus predicted points seem equally distributed aobut the 45° line. For MRs of 16 Cl_2/S^{-2}, the model over predicts turbidity production. Statistical hypothesis testing of the predicted and actual turbidites indicated that the predicted and actual turbidity formation are statistically equivalent and representative of turbidity formation as observed at the Keller I water treatment plant. The significance of this model from a practical standpoint is that sulfur formation during chlorination cannot be avoided. Consequently, chlorination of sulfide should be avoided if at all possible. Academically, the model can be used to predict sulfur formation in chlorination processes using a natural water source.

Calculated surface loading rates from the laboratory study indicated that settling would not remove sulfur turbidity. Increased exposure to Cl_2 residual would not oxidize sulfur completely to sulfate. Particle size analysis indicated that the turbidity particle was at maximum 1 micron, the minimum detection limit of the particle size analyzer. If the sulfur particles are colloidal, the particle size could range from 0.01 to 1.0 micron, too small for media filtration.

THM samples collected at varying Cl_2/S^{-2} MRs showed that chlorine reacted more preferentially with H_2S than with THM precursors as shown in Figure 9. THMs were not formed until the hydrogen sulfide was completely destroyed at a MR of 4 Cl_2S/S^{-2}.

CONCLUSIONS

The results of the laboratory and field batch tests support the following conclusions:

- Sulfides were completely destroyed by chlorine at chlorine to sulfide MRs slightly greater than 2 to 1 in distilled water and 4 to 1 in Pinellas groundwater.
- Turbidity is formed when H_2S is completely oxidized by chlorine; the turbidity is attributed to elemental sulfur.
- Turbidity formation during sulfide chlorination increases with increasing pH, H_2S concentration, and reaction time up to 30 minutes; turbidity formation decreases with increasing DO concentrations when H_2S is completely destroyed.
- H_2S oxidation by chlorine cannot be predicted by stoichiometric reactions producing S^o and SO_4^{-2}. However, maximum turbidity was produced during H_2S chlorination at a minimum MR of 2 Cl_2/S^{-2} that destroyed all H_2S. Increasing the chlorine dose or the Cl_2/S^{-2} MR above this point decreased, but did not eliminate, turbidity. Consequently, the referenced stoichiometry is partially representative of the observed trends of turbidity formation. However, more complex reactions involving sulfur oxidation are involved.
- Chlorination should not be used to remove sulfides in potable water treatment unless followed by an effective turbidity removal process.
- Chlorine will react preferentially with sulfides before THM precursors.
- Turbidity production during sulfide chlorination could be generally described by a log variant statistical model.
- According to the statistical model, factors influencing sulfur

turbidity formation in descending order of importance are H_2S concentration, chlorine dose, pH, time, and DO.

ACKNOWLEDGEMENTS

This research was funded by Pinellas County Utilities and conducted by the University of Central Florida. The authors thank Pinellas County for its support during this investigation.

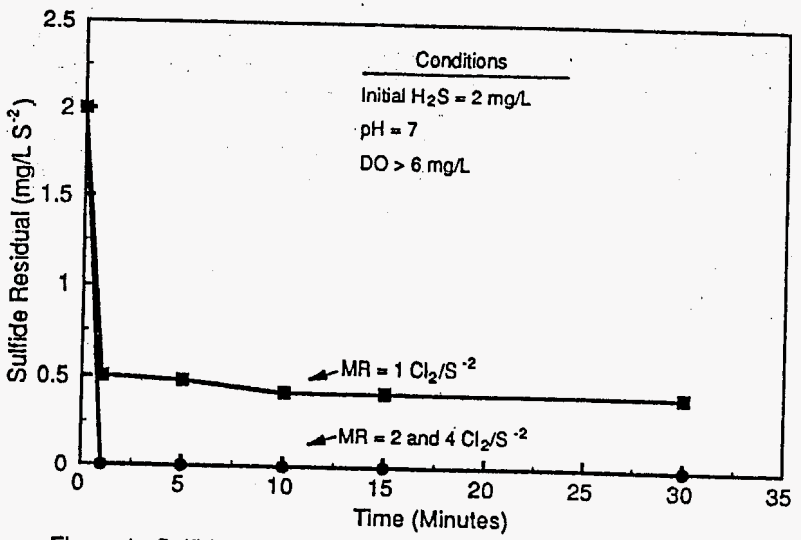

Figure 1: Sulfide Residual Versus Time for Laboratory Experiments

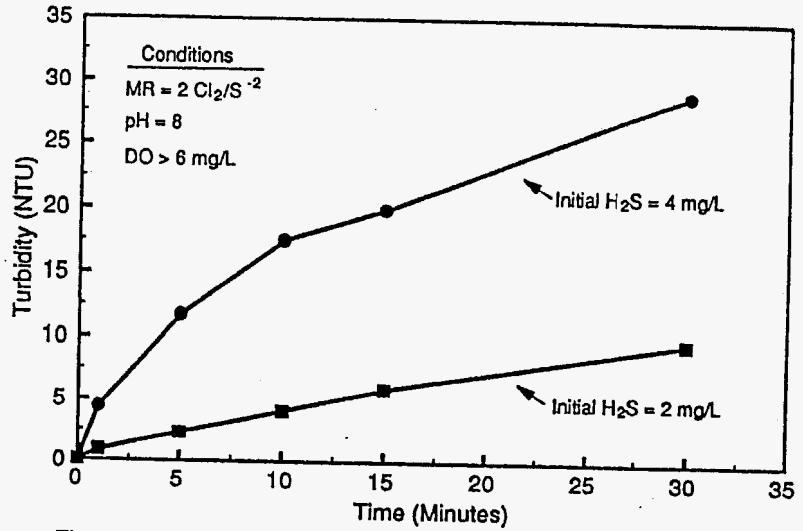

Figure 2: Turbidity Versus Time for Laboratory Experiments (Effect of Initial Hydrogen Concentration and Time on Turbidity Formation)

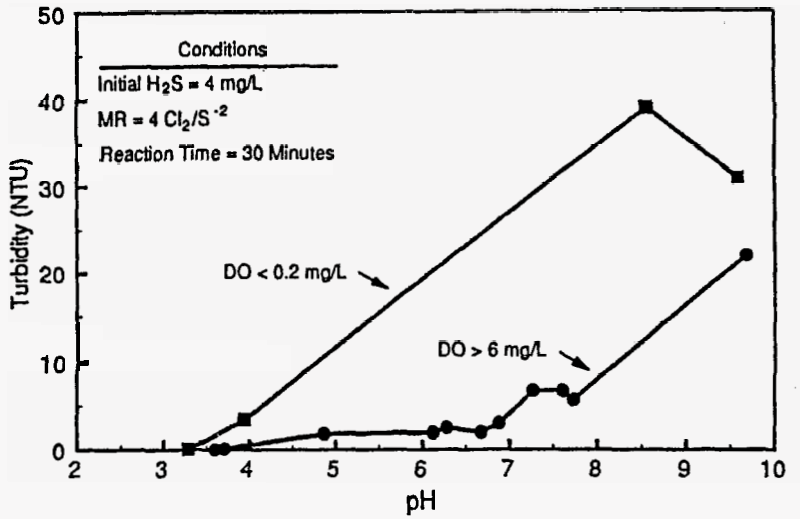

Figure 3: Turbidity Versus pH for Laboratory Experiments at High and Low DO (Effect of pH and DO on Turbidity Formation)

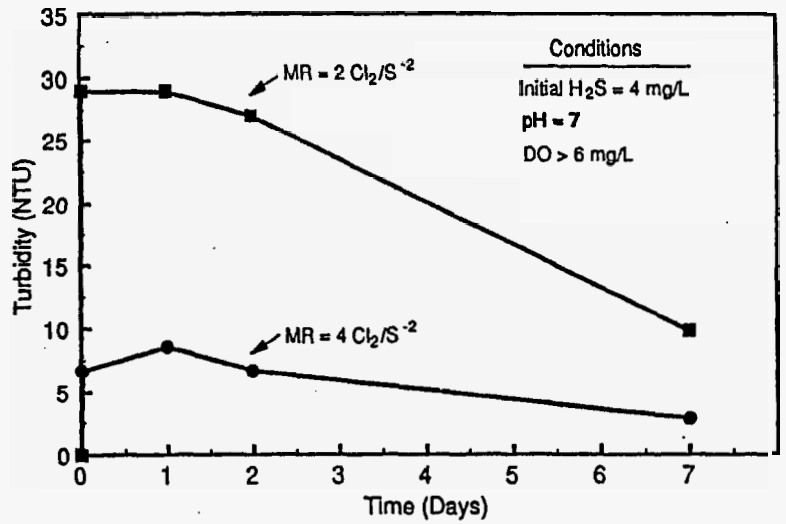

Figure 4: Turbidity Versus Time for Laboratory Experiments at 2 Different Cl_2/S^{-2} Molar Ratios (Effect of Molar Ratios on Turbidity Formation Over Time)

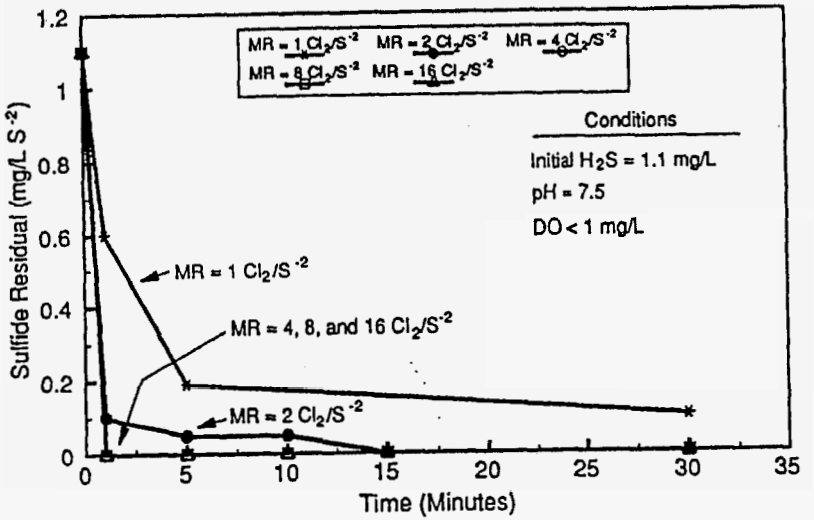

Figure 5: Sulfide Residual Versus Time for Field Experiments

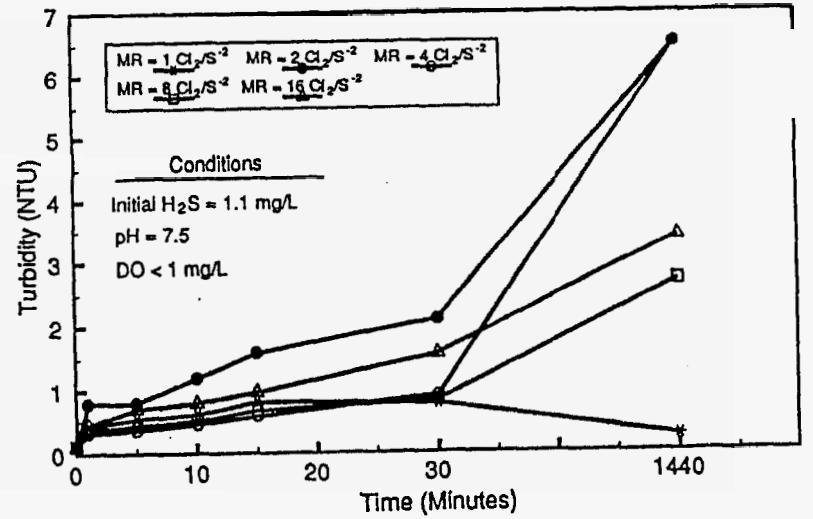

Figure 6: Turbidity Versus Time for Field Experiments

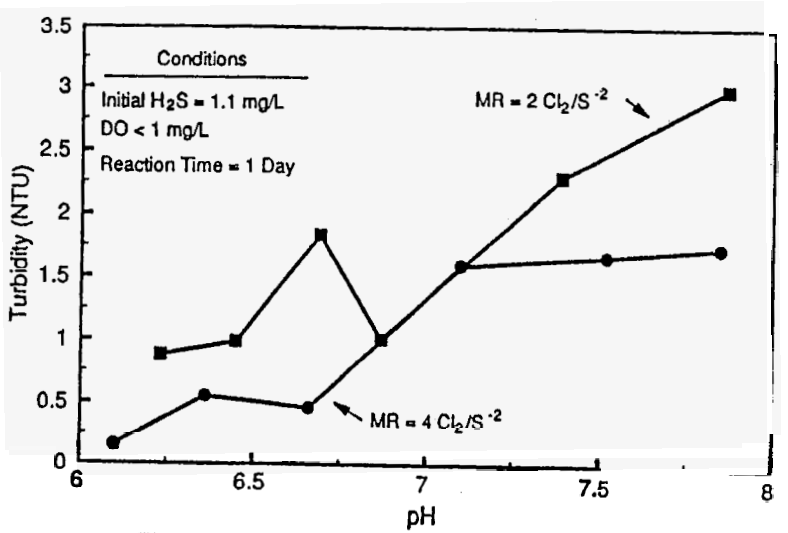

Figure 7: Turbidty Versus pH for Field Experiments (Effect of pH and MR on Turbidity Formation)

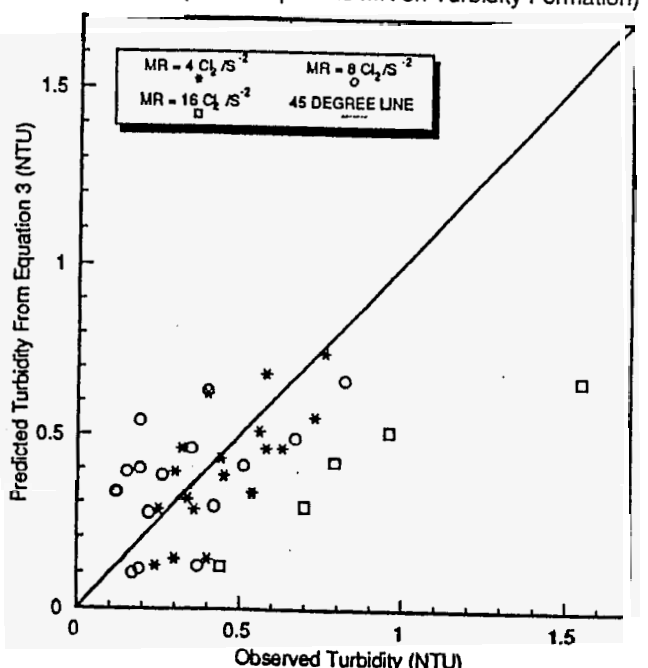

Figure 8: Turbidity Predicted by Equation 3 Using a Chlorine Dose of 9.76 mg/L Versus Observed Turbidity of the Field Experiments

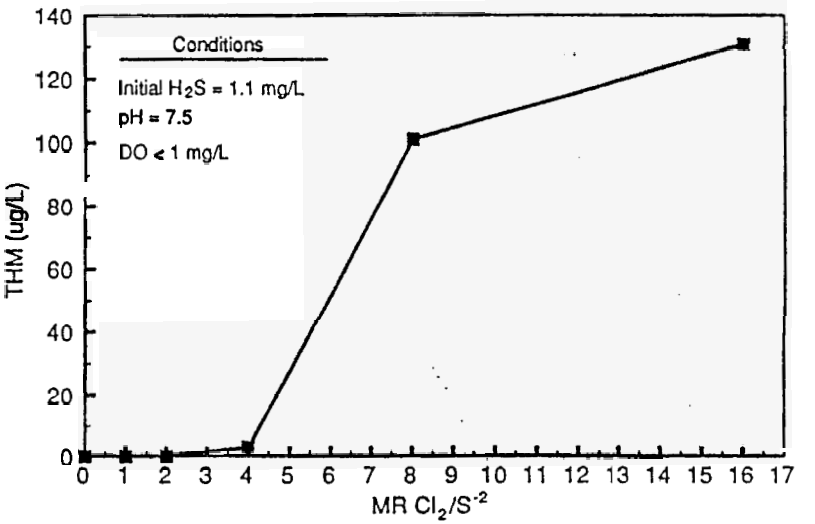

Figure 9: THMFP Versus MR for Field Experiments

David W. Porter, P.E., C.O.
Water/Wastewater System Consultant

Regulatory Assistance, Troubleshooting, Permitting, Contract Operation, Rehabilitation and System Design

September 11, 1997

Pasco County
Utilities Services Branch
Public Works/Utilities Building, S-205
New Port Richey, FL 34654
Attn: Mr. Douglas S. Bramlett, Assistant County Administrator

Re: Aloha Utilities, Inc./Seven Springs Water System

Dear Mr. Bramlett:

Last Friday I received a copy of a letter that you wrote to Representative Mike Fasano in which you gave your opinion regarding the cause of "black water" problems that are being experienced by a small number of Aloha's customers located in an isolated section of Aloha's south western service area. Because you expressed opinions concerning Aloha's water system and provided a comparison between Aloha's corrosion control program and that of Pasco County, I believe your letter requires a response. There has been considerable debate and on-going litigation concerning this issue to date. To the extent that you have chosen to express your opinion on these volatile issues I must, on behalf of my client Aloha Utilities, Inc. point out that your letter is wrought with inaccuracies. We therefore request that you immediately issue a retraction, or at the very least a statement that your opinions were in error.

I must start out by telling you that when I read your letter I was astounded. Many of your statements contradicted not only my understanding of water process engineering and water chemistry, but also the specific findings of the numerous treatises and articles which I have researched on this subject over the last several years. I have prepared this letter in hopes that you can clarify your comments to show me the basis, if any, for the specific points your raised which I otherwise believe to be without foundation.

First of all, you state that the source of black water is the "high concentration of naturally occurring hydrogen sulfide (H_2S) in the source water." The source water in question does not contain "high" concentrations of hydrogen sulfide. Since we, like all water utilities (including Pasco County) are not required to submit hydrogen sulfide monitoring data for our source water to FDEP, I would like to know how you concluded that Aloha's source water contains "high" levels of hydrogen sulfide. In fact, the information we have concerning sulfate concentrations in Pasco County's finished water, shown later in this letter, leads us to believe that the County's source water may be higher in hydrogen sulfide then that of Aloha.

Aloha provides proper, and generally accepted, treatment for the control of hydrogen sulfide at its well sites. Chlorine oxidation of hydrogen sulfide is provided at each well site. This method is very successful as the water entering the distribution system does not contain any measurable quantity of hydrogen sulfide. All hydrogen sulfide is oxidized to sulfate. The chemical equation related to this reaction is well know and well understood. This process has been utilized at countless numbers of water facilities for controlling hydrogen sulfide for decades. The equation follows:

$$H_2S + 4Cl_2 + 4H_2O \rightarrow H_2SO_4 + 8HCl$$

Please note that no elemental sulfur is produced in this reaction...only the sulfate form of sulfur remains.

Wells Road • Suite 226 • Orange Park, FL 32073 • Phone: 904-269-6773 • Fax 904-269-3667 • Pager: 904-645-2048 • E-Mail: porterne@...

Mr. Douglas Bramlett
September 11, 1997
Page 2

You state that in your system, you utilize air stripping to remove a portion of the hydrogen sulfide. Air stripping at the pH normally found in raw waters is not very efficient in removing hydrogen sulfide. A large portion of the sulfide is not in the gaseous state at pH 7 or above and can not, therefore, be removed by air stripping. In fact only 64% of the total hydrogen sulfide is in the gaseous state at this pH. Therefore, even if your air stripper was 100% efficient in removing the hydrogen sulfide that is in the gaseous state (which it is not), over 35% of the hydrogen sulfide would not be removed and would pass though the air stripping unit. Your water would still contain a substantial portion of the of hydrogen sulfide originally present. What you may not be aware of is the fact that air stripping adds substantial quantities of oxygen to the water which causes the water to become very corrosive. In addition, the elevated oxygen levels can cause the oxidation of the remaining hydrogen sulfide to elemental sulfur as shown in the following reaction:

$$2\,H_2S + O_2 = 2H_2O + 2S_{(S)}$$

Therefore, it is more likely that facilities utilizing simple air stripping will produce elemental sulfur than will facilities utilizing chemical oxidation. The main problems associated with converting hydrogen sulfide to elemental sulfur are related to finished water turbidity increases and the negative effects that increased water turbidity produce (like lower disinfection efficiency, increased chance for bacterial contamination and growths in the distribution system, etc.).

One of the statements that you made is plainly contrary to all literature on the subject of black water development of which I am aware. Did you really mean to say that "the addition of chlorine disinfection produces elemental sulfur which, combined with the presence of the orthopolyphosphate and the addition of heat in the water heaters causes chemical reduction and results in the development of "black water" (copper sulfate) conditions." There are a number of inaccuracies in this statement. First, chemical oxidation of hydrogen sulfide with chlorine does not produce any appreciable quantities of elemental sulfur as shown in the chemical equation presented on page one of this letter. Next, it is not possible to combine sulfur and orthopolyphospate under any conditions to get copper sulfate...a source of copper is required. Please see the attached letter from the manufacturer of the orthopolyphosphate inhibitor Aloha utilizes confirming this fact.

After Aloha's water is treated at its well sites, there is no appreciable quantity of hydrogen sulfide present in the finished water...it has been converted to sulfate. The level of sulfate in Aloha's water meets all state and federal standards...as you may know the federal standard is presently 250 mg/L for sulfate. Aloha's water typically has a sulfate concentration of about 10 mg/L. Interestingly, Aloha's sulfate concentration is less than half of that produced at the County's treatment system. In fact your 1996 water quality testing data, as submitted to the FDEP and attached here, shows that your West Pasco Water System produces water with sulfates that range from a low of 12.44 mg/L to a high of 47.8 mg/L. Your main facility, the Little Road Water Treatment Plant, which is I believe the facility with the air stripping units, produces water with a sulfate concentration of 24.49 mg/L which is approximately two and one half times greater than that shown for the Aloha system.

After the water enters the homes of our customer's, in most cases, this sulfate causes no problems. However, in a small number of homes, the sulfate is converted back to sulfide in the homeowners hot water system by sulfate reducing bacteria as shown in the following equation:

$$SO_4^{2-} + 8H^+ + 6e^- \rightarrow H_2S + 2H_2O + 2OH^-$$

The equation shows several important facts. First, free electrons are required for this reaction to proceed. The source of these elections has frequently been found to be from the placement of a sacrificial anode in the hot water tank. The anode's purpose is to extend the life of the tank by corroding before the tank. However, corrosion, which is the loss of electrons, provides the free electrons needed to allow the reduction reaction to proceed. Frequently, changing out the anode will correct this problem (as recommended in American Water Works Association publications). Secondly, the quantity of hydrogen sulfide produced in this reaction, assuming that there are a sufficient number of organisms and time so as not to rate limit the reaction, is directly proportional to the quantity of sulfate present in the water. Since the water produced by the County contains far greater quantities of sulfate than that produced by Aloha, one would speculate that your customer's should be experiencing a much higher incidence of the black water problem if your analysis of the source of the problem is correct. There are many other sources of electrons that could cause this problem. One of these is the improper grounding of home electrical systems to the water piping, causing current to flow through the copper piping, which causes the release of electrons into the water. This reaction is very complicated and a great number of papers and books have been written on the subject.

Are you also aware that FDEP has determined that the black substance you talk about is largely composed of copper sulfide not copper sulfate? There is quite a large difference between the two. We believe that since the black particles found in the water have been shown to be copper sulfide, the more likely mechanism for the development of the particles is that, in certain homes, sulfate is reduced to sulfide by sulfur reducing bacteria. This sulfide then combines with copper, leached from the customer's piping as part of the natural process of copper pipe corrosion. This combination of copper and sulfide yields copper sulfide.

The source of the copper needed to form copper sulfide comes from the customer's home copper water piping system. Copper pipe corrodes with time under all water conditions, however, recent research has shown that water containing naturally occurring sulfides accelerates this process. Copper water piping corrosion is a major problem in Florida, so much so that a panel of experts has been assembled (of which I am a member) by State of Florida Department of Community Affairs working with the University of Florida to address this problem and to make recommendations to building officials and others state-wide that may lessen this problem. Due to information gained from this group to date, Mr. Watford, President of Aloha Utilities, Inc. sent a letter to Mr. Gallagher recommending that he look into the problem and suggested that the County may want to develop an information sheet to be provided to builders that would instruct the builder's that they should carefully consider all the facts before they chose the material of construction to be used in water piping system. It has come to our attention that a number of Florida communities have considered banning the use of copper piping for residential water system use. In fact, Duval county banned its use two years ago. If copper piping were not used, it would be impossible for copper sulfide to form.

Your statement that the orthopolyphosphate in some way enhances the generation of the black water particles is totally false. In fact, the opposite is true. Orthopolyphosphate corrosion inhibitor blend addition to water systems is a recognized effective technology to control copper corrosion. The great majority of water systems in Florida with raw water characteristics similar to Aloha's are using this technology successfully. In fact nearby Pinellas and Hillsborough Counties are utilizing the same inhibitor chemical that Aloha uses. Pinellas County and Aloha share the same water source as Pasco County. Again I refer you to the inhibitor manufacturer's letter attached for additional information on this matter.

Since Aloha began adding the inhibitor, the concentration of copper found in first-draw tap samples has fallen dramatically to 1.55 mg/L at the 90th percentile level. Aloha expects to find that with their second round of post treatment sampling, scheduled for later this year, that Aloha's first-draw tap sample test results will yield a copper concentration below the 1.3 mg/L action level. Pasco County has chosen to utilize pH adjustment as your corrosion control method. According to my telephone discussion with Gerald Foster of the FDEP, the County's first round, post treatment, first-draw tap sample test results showed 1.99 mg/L copper at the 90th percentile. Therefore, your copper concentration value is 28% higher than Aloha's. Your chosen corrosion control method is not performing as well as that chosen by Aloha. Your statement indicating that your use of pH control rather than inhibitor addition was a factor that explained why your customer's do not experience this black water problem is contrary to your own reported test results. In fact, since the concentration of copper in the water is directly related to the formation of copper sulfide, the incidence of black water must logically be more pronounced in your system than Aloha's.

The fact that the County's water contains more sulfate and that the tap samples of water at your customer's homes contains more copper leads me to believe that there is a good chance that there are customer's in your system that are experiencing the black water problem and that either they have not spoken out or you are not reporting this fact in your letter. I would think that it would be a good idea for the County to survey its customers to determine if the problem is being experienced so that the appropriate action can be taken.

What sets Aloha's problem off from the other systems that are experiencing this problem across the State (and there are many such systems) is that Aloha is receiving a great deal of attention from Representative Fasano that the others are not. Aloha is making every effort to assist its customers that are experiencing this problem through its corrosion control program.

Doug, I hope that this letter provides you with the data needed for you to determine that your letter to Representative Fasano needs to be retracted or substantially clarified and corrected.

Thank you in advance for whatever information you can provide me to explain the discrepancies I have indicated. If you have any questions, please call me.

Sincerely,

David W. Porter, P.E., C.O.
Water/Wastewater System Consultant

Cc: Steve Watford, President/AUI
Marty Deterding, Esq./RS&B
John Jenkins, Esq./RS&B
Representative Mike Fasano
Ralph Jaeger/FPSC
John J. Gallagher/Pasco County Administrator
Pasco County Board of County Commissioners

MET PRO CORPORATION **Stiles-Kem Division**

1570 LAKESIDE DRIVE • WAUKEGAN, IL 60085-8309 • (847) 689-1100 • FAX (847) 689-0289

David W. Porter, P.E., C.O.
1857 Wells Road, Suite 210
Orange Park, Fl. 32073

September 8, 1997

Dear Dave:

In reference to our discussion this morning regarding the issue of "black water", I feel that it is essential that everyone understand the chemistry we apply through the use of our *blended phosphate treatment programs*. We have always explained our technology to all interested parties hoping that a better understanding of this technology will continue to provide for the great success we have enjoyed throughout the country for over 40 years.

Our discussion centered on the use of phosphates (specifically orthophosphate) in Florida waters. As you are well aware, we treat a significant number of communities throughout the State of Florida. "Black water" problems have never been linked to the use of phosphates, rather it is often understood that the use of *blended phosphates* can alleviate these types of problems.

Phosphate + hydrogen sulfide + heat does not cause "black water" (copper sulfate). You as well as several other colleagues, have studied this "black water" phenomena for some period of time. In our previous discussions, I feel that you have a good solid understanding of our treatment approach and can appreciate the fact that our programs deal with lowering lead/copper levels as well as sequestering iron, manganese and hardness within supply waters. This has been demonstrated at Aloha Utilities, Pinellas County and Hillsborough County.

Our reputation throughout the country as well as within the water treatment community remains excellent. We pride ourselves on the method of application of these treatment programs and the benefits we provide to the people across the country. If anyone is interested in learning more about our treatment programs, please have them contact us directly.

As always, we thank you for your interest in maintaining high drinking water standards. Feel free to contact us if the need arises.

Sincerely:

William F. Mersch

William F. Mersch

cc: Mr. Keith Chance

NSF

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

July 3, 2002

Dr. V. Abraham Kurien, M.D.
1822 Orchard Grove Avenue
New Port Richey, Florida 34655-4716

Dear Dr. Kurien:

I have received your letter of June 20, 2002. Your observation that Aloha might be using inadequate methodology is correct. Unfortunately the oxidation of hydrogen sulfide to sulfur and sulfate with chlorine is not an irreversible process. Under the proper conditions, sulfur bacteria will convert the sulfates back to hydrogen sulfide. This phenomenon is common and frequent with water systems in Florida that use this method of treatment to deal with hydrogen sulfide.

The most effective method of treating for hydrogen sulfide is to remove it. Enclosed is a diagram of the Sulfide Species Distribution vs. pH. H_2S is volatile while HS^- and S^{2-} are not. The accepted practice is to lower the pH of the raw water to 6.0 to 6.5 so that 80-90% of the species is in the H_2S form and then aerate the water. That process takes out both the H_2S and a significant portion of the alkalinity as CO_2. Additional treatment is then required to raise the pH back to around 7.5 and replace the alkalinity that is needed to stabilize the water.

Aloha has stated that the company is willing to invest in the additional treatment as long as the Public Service Commission (PSC) will guarantee it a rate increase. The customers of Aloha have told the PSC on numerous occasions that they are not willing to pay higher rates, and the PSC has declined to guarantee additional rates. As a medical doctor, you can appreciate that additional, advanced treatment cannot be provided free of charge.

Your understanding of the chemical process is correct. Chlorination will reduce the pH of the water, and this very well could account for the lower pHs that we have seen. I should point out, however, that the generation of hydrogen sulfide is a natural process caused by anaerobic bacteria. As a result, amount of H_2S appearing in raw well water can vary significantly on a day-to-day basis. That said however, it certainly is desirable to have a constant pH in the range of 7.3 to 7.6. Our Tampa office will continue to investigate. We will see if there is any action we can take under other rules, like the Lead and Copper Rule, to require Aloha to stabilize the water to a more consistent level.

You inquired about the possibility of Aloha superchlorinating the water. I think that is very unlikely. Superchlorination is not a treatment technique normally used by groundwater treatment plants. Occasionally surface water treatment plants will superchlorinate to deal with

severe tastes and odors caused by algae and other organics. The chlorine is usually injected at the beginning of treatment. Excess chlorine is then removed prior to filtration using activated carbon.

However, the state does require by rule that water systems maintain a minimum of 0.2 mg/L free chlorine at all points in the distribution system. In order to obtain that level of free chlorine, the water system must practice what we call breakpoint chlorination. I have include two pages from a US EPA reference on breakpoint chlorination.

In addition, I have reproduced a few other articles from my files on hydrogen sulfide that you might find interesting. Thank you for your interest in this problem.

If you have any questions or concerns, please call me at 487-1762.

Sincerely,

Van R. Hoofnagle

Van Hoofnagle, Administrator
Florida Drinking Water Program
Florida Department of Environmental Protection

VH/bwfr/mm

cc: Richard Drew

Enclosure

D.E.P.
OCT 28 1993
SOUTHWEST DISTRICT
TAMPA

Lead and Copper Tap Sample Analysis And Result Ranking Report Format

stem Name: Seven Springs

-ID: 6512214

oratory Name: Haines Testing Laboratory

-ID: 84123

tact Person: Steve Watford

hone: (813) 937 - 4275

Date Submitted to Lab: / /

Analysis Date: 8 / 12 / 93

Lab Analysis method: 220.1

Lead or Copper (list one): Copper

Method Detection Limit: .001

90th Percentile Value: 2.39

RANK (ascending)	LOCATION CODE NO	LOCATION CODE TIER	LAB SAMPLE ID.	DATE SITE SAMPLED	LEAD (mg/l)	COPPER (mg/l)
20	31		86680-13	8/5/93		.450
21	34		86680-14	8/5/93		.480
22	30		86655-6	8/4/93		.490
23	9		86655-2	8/4/93		.500
24	19		86703-2	8/6/93		.590
25	49		86995	9/3/93		.620
26	23		86703-5	8/6/93		.690
27	43		86680-17	8/5/93		.690
28	45		86680-19	8/4/93		.790
29	58		86703-6	8/6/93		.810
30	29		86703-3	8/5/93		.890
31	50		87348-8	10/19/93		.920
32	14		86680-4	8/4/93		.950
33	12		86783-1	8/15/93		1.000
34	4		86703-1	8/6/93		1.100
35	56		86680-22	8/5/93		1.100
36	47		87348-7	10/20/93		1.200
37	39		87348-6	10/20/93		1.210
38	41		86680-16	8/5/93		1.260

D.E.P.
OCT 28 1993
SOUTHWEST DISTRICT
TAMPA

Lead and Copper Tap Sample Analysis And Result Ranking Report Format

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6512214

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90th Percentile Value: 2.39

RANK (ascending)	LOCATION CODE NO	LOCATION CODE TIER	LAB SAMPLE ID.	DATE SITE SAMPLED	LEAD (mg/l)	COPPER (mg/l)
39	54		86655-7	8/4/93		1.280
40	28		86680-12	8/5/93		1.320
41	3		86680-2	8/5/93		1.320
42	38		87348-5	10/19/93		1.360
43	22		86680-8	8/4/93		1.380
44	35		86757-6	8/13/93		1.480
45	44		86719-4	8/5/93		1.660
46	20		86655-27	8/5/93		1.700
47	59		86655-8	8/3/93		1.720
48	7		87348-2	10/19/93		1.720
49	57		86687-5	8/6/93		1.820
50	60		86719-5	8/4/93		1.960
51	32		87348-4	10/19/93		2.000
52	11		86680-3	8/4/93		2.080
53	1		86757-1	8/5/93		2.160
54	13		86655-3	8/4/93		2.390 90th
55	25		86680-9	8/5/93		2.520
56	5		87348-1	10/20/93		2.540
57	27		86680-11	8/6/93		2.600

D.E.P.
OCT 28 1993
SOUTHWEST DISTRICT
TAMPA

Lead and Copper Tap Sample Analysis And Result Ranking Report Format

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Lead or Copper (list one): Copper

Method Detection Limit: .001

90th Percentile Value: 2.39

RANK (ascending)	LOCATION CODE NO	LOCATION CODE TIER	LAB SAMPLE ID.	DATE SITE SAMPLED	LEAD (mg/l)	COPPER (mg/l)
58	6		86655-1	8/4/93		2.600
59	55		86680-21	8/5/93		2.760
60	36		86719-2	8/4/93		3.380

even Springs Lead and Copper
esting Sites for Reduced Lead and Copper Tap Monitoring

ication ode	Account #	Last Name	First Name	Address	Subdivision	Phone	1999 Date Sampled	Results Lead (0.15)	Results Copper (1.3)
RT050	9839-2	Gerhart	Corinna	7638 Balharbour Drive	Millpond	376-5273	5/17/99	0.002	2.28
RT171	5874	Kanski	Thomas	3636 McCloud Street (81)	Veterans Village	376-4723	5/18/99	0.003	1.43
RT175	22160	Byrd	Bridgett	3636 Mendocino Street (79)	Veterans Village	372-2849	5/18/99	0.004	1.37
RT138	5478-3	Young	Tom	3111 Lenwood Drive (78)	Veterans Village	376-1739	4/14/99	0.002	1.28
RT151	24892-2	Tempest	Norman	6914 Westend Ave. (78)	Veterans Village	375-0066	4/1/99	BDL	1.26
RT102	4879-3	Bonczek	Henry	7809 Putnam Circle	Veterans Village	376-5138	3/22/99	BDL	1.21
RT049	9838-4	Cianflone	Allen	7702 Balharbour Drive	Millpond	376-4498	3/26/99	BDL	1.19
7149	26211-3	Schaumburger	Carl	3143 Latrobe Street (78)	Veterans Village	372-1761	5/13/99	BDL	1.14
RT044	13146-6	Walworth	Seth	4849 Boonesboro Court	Wedgewood Village Condo	376-3620	3/23/99	BDL	1.10
RT002	3720-0	Bishop		7431 Belvedere Terrace	Seven Springs #1	376-3752	5/17/99	0.002	1.03
RT033	4883-5	Burg	Vee	3336 Mexacali Street	Seven Springs #5A	376-4380	3/29/99	BDL	1.01
RT163	12454	Searle	Josephine	6951 Lassen Ave (78)	Veterans Village	376-4138	5/13/99	0.003	0.97
RT041	19239-3	Turner	Maria	3418 Murrow Street	Seven Springs #5B	376-7838	3/24/99	0.003	0.96
RT059	3629-3	Kemp	J.W.	3522 Gorman Drive	Veterans Village	376-3598	4/6/99	BDL	0.95
RT100	4855-3	Chesla	Joseph	7944 Putnam Circle	Veterans Village	376-4520	3/25/99	BDL	0.95
RT170	5751	Diloreto	Vincent	3214 Lenwood Dr	Venice Estates	376-4586	5/24/99	BDL	0.93
RT086	4349-7	Foskey		7406 Humboldt Avenue	Veterans Village	376-1270	3/24/99	0.002	0.86
RT145	5598-8	Reid	Ernest	6908 Westend Ave (79)	Veterans Village	376-4542	4/6/99	BDL	0.86
RT022	9840-0	Cregan	John	7636 Balharbour Drive	Mill Pond Estates #2	376-5971	3/23/99	BDL	0.85
RT112	6892-4	Palyj	Charles	4241 Cottontail Drive	Park Lake Estates	376-0222	3/24/99	BDL	0.85
RT184	6054	Baird	Mr.	7306 Riverbank Dr (81)	River Parkway	376-3762	5/19/99	0.001	0.84
RT076	20476-8	Callaghan	Annie	7108 Daggett Terrace	Veterans Village	372-1742	3/23/99	0.001	0.80
186	6093	Christian	Mr.	2313 Woodbend Cir (78)	Woodbend	372-8813	5/19/99	BDL	0.77
RT111	6902-1	Ferro	Frank	4317 Otter Way	Park Lake Estates	376-1101	5/4/99	BDL	0.75
RT 137	5481-7	Staples	R.	3117 Lenwood Drive (78)	Veterans Village	376-4713	4/6/99	BDL	0.75
RT042	22257-0	Turner	Anthony	3544 Murrow Street	Seven Springs #5B	372-2886	3/24/99	0.004	0.74
RT135	25491-2	Kearney	Francis	3246 Kismet Court (83)	Veterans Village	376-7027	4/6/99	BDL	0.69
RT106	20130-1	Kundrack	Gerry	3500 Martell Street	Veterans Village	376-8880	5/17/99	0.002	0.67
RT035	22704-1	McCrann	Denis	7342 Mitchell Ranch Road	Seven Springs #7	376-7868	3/23/99	BDL	0.65
RT052	6764-5	Kozak	Daniel	4136 Raccoon Loop	Park Lake Estates	376-2861	3/23/99	BDL	0.64

JUL 26 1999

...gs Lead and Copper
... Sites for Reduced WQ... Tap Monitoring

dress				
19 Onorio				
38 Sawgrass				
[redacted] Tall Oak Lane				
42 Volunteer				
46 Tiburon				
[redacted] St. Lawrence				
[redacted] Kinsmere				

RECEIVED FEB 1 1 1998
from Aloha Utility @ HPR Meeting

Water Discoloration Information

Starting in late 1995, Aloha began receiving a relatively small number of complaints of water discoloration from customers living in the Wyndtree and Chelsea Place subdivisions. Aloha expended considerable resources investigating the cause of the problem. It was not uncommon to find one customer experiencing the problem and the neighbors immediately next door completely unaffected. In addition, in each and every instance, the water entering the affected customer's home was clear and clean and exhibited no discoloration. These two facts led Aloha, the Florida Department of Environmental Protection (FDEP) and the Florida Public Service Commission (FPSC) staff to conclude that the discoloration occurred after the water entered the home.

With the help of the FDEP, Aloha determined the cause of the problem. The FDEP lab identified the black substance in the water as copper sulfide. Copper sulfide forms when the copper piping in the home corrodes causing copper to be dissolved into the water. This dissolved copper then combines with sulfide (generated in the hot water system of the home when sulfur reducing bacteria break down naturally occurring sulfur compounds) to form copper sulfide. Aloha has no copper piping in its entire distribution system.

The formation of copper sulfide should be minimized and the discolored water problem should be greatly reduced if the leaching of copper into the water from the home piping can be controlled or if the formation of sulfide can be reduced in the customer's hot water system.

Aloha began adding a corrosion inhibitor to the water in late April 1996 to minimize copper corrosion and leaching. To date, the program has been very successful. In December 1997 Aloha's sample results for the Seven Spring Water System showed that customer tap samples contained less than 1.10 mg/L of copper; substantially below the State and Federal requirements. It is important to note that the water supplied to Aloha's customers contains no copper prior to its entry into a customer's home.

In-home water treatment units change the water chemistry from that supplied by Aloha. All forms of water softening make the water very corrosive to copper piping. These water treatment units can increase the natural rate of copper corrosion to very high levels. Copper corrosion is the process by which copper piping is dissolved into the water its carries. This dissolved copper provides the copper necessary to form the copper sulfide particles which causes water discoloration. Customers without in-home treatment units, natural corrosion of copper pipes occurs at a much slower rate, therefore, less copper is dissolved into the water. In general, the experience of home owners without in-home treatment units is that they are much less affected by copper sulfide water discoloration.

Low hot water heater temperature setting allows the growth of microorganisms that change the sulfur found naturally in Florida groundwater into sulfide. Copper sulfide will not form without a source of sulfide present. In addition, certain types of "sacrificial anodes," special metal rods installed in hot water tanks to expend the life of hot water heater components, give off charged particles (electrons) that are necessary for the microorganisms to produce sulfide. Changing the type of anode installed in the hot water tank or the temperature setting may prevent the problem. **Changing hot water settings may create a scalding hazard. Also, removing and/or changing the hot water tank anode may void the hot water tank manufacturer's warrantee. Therefore, these changes should only be made by a licensed plumber after special scalding protection equipment is installed and hot water tank warrantee issues are discussed.**

Although Aloha's water is clean, clear, odor free and meets all FDEP and Federal standards, Aloha has been studying the copper sulfide problem since it was first reported in an effort to assist its customers. Since that time, corrosion of copper water piping has become recognized as a state-wide problem. The University of Florida has just completed an initial study to assess the magnitude of the problem. It found that many parts of Florida are experiences major problems with copper water piping corrosion and has recommended that a major study be undertaken to further identify the causes of the problem and possible solutions.

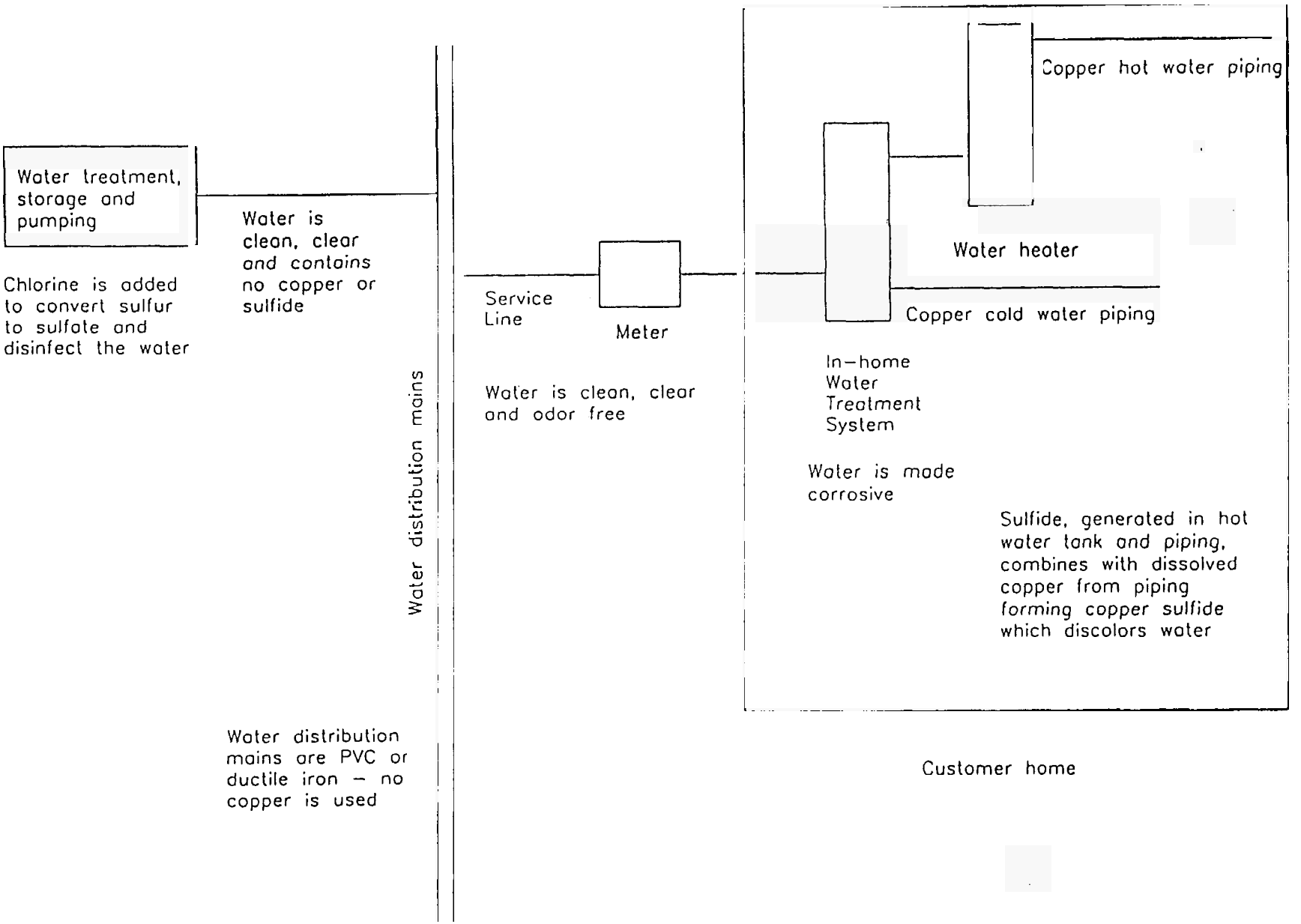
Aloha has worked very closely with the FDEP, the FPSC and its customers to search for a solution to the in-home water discoloration problem. Hundreds of thousands of dollars have been spent during the last two years to complete studies and investigations ordered by the FPSC regarding this matter. To date, not one study or investigation, completed by Aloha or any other party, has shown Aloha's water to be discolored prior to its entry into a customer's home. Aloha has contended that each of the required studies and investigations were not necessary as sufficient data already existed within the records of the FDEP and other governmental agencies to show that Aloha's water met all standards. In fact, on numerous occasions, FDEP administrators and FPSC staff have stated that Aloha's water meets all requirements in written statements and in sworn testimony.

This discolored water issue has been the subject of a great deal of media attention, spearheaded by Representative Fasano, over the last two years. The actual number of complaints that Aloha have received regarding this issue represent less than 200 customers out of the 8,200 customers Aloha serves in the Seven Springs Water System service area. Aloha provides these facts not to minimize or make light of the problem being experienced by those that are affected, but to help keep the actual magnitude of the problem in focus. What customers have not been told is that the cost of any actions taken by Aloha in hopes of correcting the problem will ultimately be borne by all customers whether they are experiencing the problem or not. Based on all the scientific evidence accumulated by any person or agency to date, any such costly improvements are not likely to substantially reduce the problem for those who are currently experiencing it.

At a FPSC customer hearing held in 1996, FDEP experts testified that Aloha was in full compliance with all State and Federal water standards. Nevertheless, the FPSC ordered that a study be performed to determine the options for improving overall water quality primarily for the purposes of addressing the discoloration problem. The FPSC required Aloha to study methods of removing sulfide from our raw water. In the view of our consulting engineer, and supported by the most recent information available from the water industry nationwide and from university researchers who have recently concluded studies in this area, simply reducing the level of sulfur in the water would have no beneficial effect on those customers currently effected by the discoloration problem.

As a result of the PSC order requiring the Utility to complete this study on sulfur removal, the Utility filed an extensive and costly study on June 10, 1997. It took three months to complete this study and the FPSC staff approximately the same length of time to review it. The cost of the study was substantial and will ultimately be born by the Utility rate payers. Based on the fact that the Utility was already meeting all State and Federal standards for water quality, Aloha felt that no further water quality improvements other than continuing the current corrosion control program were necessary and Aloha still stands by that conclusion.

FPSC staff agreed with Aloha's conclusions and recommended that the only known immediate, permanent and cost effective method of correcting the discolored water problem in the small number of effected homes is to replace all hot and cold copper water piping with CPVC or some other form of non-metallic pipe. In fact, one homeowner, who previously was greatly affected, replaced the copper piping in his home with CPVC which totally eliminated his problem. At the FPSC hearing held to discuss the FPSC staff's recommendations and where the FPSC Commissioners were to render their order in this matter, Representative Fasano's Legislative Aid presented three very recent letters to the Commissioners that proported to refute Aloha's contention that replacing copper piping with CPVC would reduce or eliminate water discoloration occurring in a customer's home. The letters contended that three customer's with CPVC reported experiencing water discoloration. The Commissioner's felt the need to postpone making their final decision and directed Aloha to look into the new information. As a result of the continuing concerns of a few, the Commission ordered Aloha to complete a system wide survey to determine the extend of the reported problems. Not only will this survey extend the time that will be needed to resolve these issues but the additional cost of preparing and sending this survey and continued discussions and responding to the FPSC will be born by the rate payers. Aloha immediately visited all three homes and found that the homes were plumbed with copper and/or a combination of copper and CPVC. Therefore, the letters produced by Representative Fasano's office were unreliable and misleading. If Representative Fasano and a small number of customers continue to demand that the FPSC take actions against Aloha Utilities despite a total lack of evidence to support them, the costs to all Aloha's customers (in the form of increased rates) will continue to rise with no ultimate benefit to the customers.



Date	Revisions	Revised By	Checked By

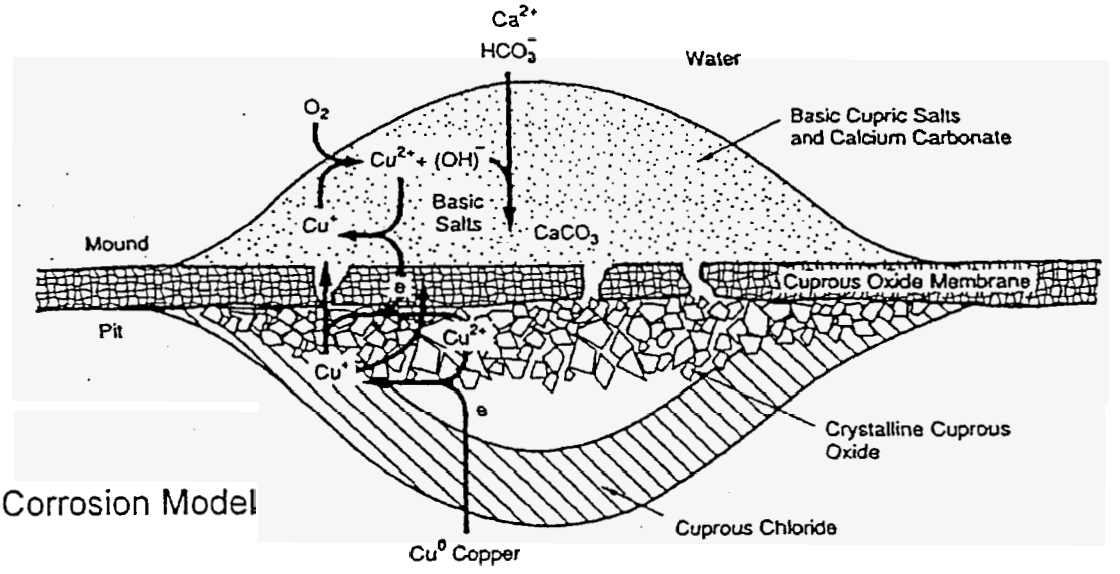
David W. Porter, P.E., C.O.
Water/Wastewater System Consultant
1857 Wells Road, Suite 226 Orange Park, FL 32073
Phone: (904) 269-6773 Fax: (904) 269-3667

Designed By	Drawn By	Checked By	Approved By
DWP	DWP	DWP	DWP

Water System Schematic

Customer Meeting
Water Discoloration Discussion
Seven Springs Water System

PROJECT NO. AUI-010-5-8
DATE February 1996
SCALE None
SHEET 01 OF 01



Copper Corrosion Model

Customers of Aloha Utilities Inc.,
The Seven Springs Area
Pasco County
Florida

The Public Service Commission
State of Florida
2540 Shumard Oak Boulevard,
TALLAHASSEE, FL 32399-0850

July 15, 2002

Hon. Members of the PSC,

We the undersigned customers of Aloha Utilities Inc, request the Public Service Commission of the State of Florida, which "has exclusive jurisdiction over each utility with respect to its authority, service and rates" and which jurisdiction "includes granting of a certificate and setting its service territory" to grant us relief from being 'captive customers' of the above *utility monopoly* for the following reasons.

1. Aloha Utilities has not been providing potable water to customers in our service area that meet the concept of 'competitive standard' set out by the PSC in its April 30, 2002 Order No PSC 02-593-FOF-WU, as evidenced by the continuing high incidence of 'black water', 'rotten egg smell' and copper pipe corrosion, issues that have not been remedied since being raised almost ten years ago, whereas neighboring Utilities have effectively reduced such problems.

2. Aloha Utilities Inc. has not instituted available processing methods (adopted by neighboring Pasco and Pinellas County Utilities) that have reduced the incidence of copper pipe corrosion and 'black water' but has continued with the ***sole*** method of super chlorination, which has so far proved ineffective and can have serious side effects.

3. Aloha Utilities has demonstrated an unwillingness and/or inability to meaningfully address our concerns by improving the characteristics of potable water so as not to cause harm to our property and/or health, and has continually stone-walled all recommendations for solving the problems using legalistic claims that it already provides 'clean, clear and safe' drinking water.

4. Aloha Utilities' lack of transparency about its water processing plant and methods has undermined the confidence of the customers in the safety of the water it supplies.

THEREFORE, we request that the Plan of Action that Aloha Utilities has been asked to submit to the PSC in its April 30, 2002 Order No PSC 02-593-FOF-WU be approved only after an independent audit of Aloha's processing plant and methodology and only if the Action Plan contains the minimum requirements adopted by neighboring utilities for raw water processing and if a Citizens' Advisory Committee is created to monitor the effectiveness of any plan that is accepted.

We would further request the PSC to order Aloha Utilities Inc. to put into effect new minimum requirements for processing water by April 30, 2003 in the hope that an earlier institution of remedial methods will lessen the likelihood of additional damage to our copper plumbing as well as the continued formation of hydrogen sulfide in CPVC systems.

IF SIGNIFICANT RESOLUTION OF THE PROBLEMS DOES NOT OCCUR by June 30, 2003 even after the institution of additional processing methods, the Public Service Commission is hereby requested to exercise its authority of "granting a certificate and setting the service territory of any utility" to

sequester the Seven Springs Area from Aloha Utilities and make it part of the service area of Pasco County water utility system.

Signature	Name in Block Letters	Address

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by Customers of Aloha Utilities, Inc. for deletion of a portion of territory in Seven Springs area in Pasco County.	))))	Docket No. 020896-WS

MOTION TO DISMISS

Aloha Utilities, Inc. (Aloha), by and through its undersigned counsel, moves to dismiss the above-referenced petition and in support states the following:

1. The petition was received by the Office of Chairman Jaber on July 18, 2002, and docketed on August 16, 2002. Aloha obtained a copy of the petition from the PSC's office of General Counsel on August 20, 2002, four (4) days after it was docketed.

2. The petition, purportedly submitted on behalf of "1491 individuals of 1314 households" in the Seven Springs portion of Aloha's certificated water territory, requests in part that the Plan of Action that Aloha has been "asked to submit" by Order No. PSC-02-0593-FOF-WU (the Order) "be approved only after an independent audit of Aloha's processing plant and methodology and only if the Action Plan contains the minimum requirements adopted by neighboring utilities for raw water processing and if a Citizens' Advisory Committee is created to monitor the effectiveness of any plan that is accepted." The petition further requests that the PSC order Aloha to put into effect new minimum requirements for processing water by April 30, 2003. The Order required implementation of the PSC's mandated treatment process by December 31, 2003.

3. In this regard, the petition is properly deemed a motion for reconsideration of the Order. The time for filing such motions has long passed, and, as such, the petition is untimely.

4. In an appeal pending before the First District Court of Appeal (DCA Case No. 1D02-2147), Aloha seeks reversal of the PSC's mandated treatment process on grounds including the absence of PSC jurisdiction to impose such treatment requirements. Aloha also therein seeks reversal of the PSC's directive to establish a Citizens' Advisory Committee and attendant requirements, in part on the basis that such directive is an improper interference with Aloha's managerial discretion. These issues are properly before the Court for resolution. Aloha herein reiterates its positions, as explicated in its Initial Brief, that the PSC does not have the jurisdiction to impose the treatment process mandated by the Order, and that the Citizens' Advisory Committee and attendant requirements unlawfully interferes with the province and prerogatives of Aloha's management, and incorporates herein by this reference Sections IID (pp. 28-33) and IV (pp. 36-37) of said Initial Brief.

5. On August 5, 2002, the PSC issued Order No. PSC-02-1956-PCO-WU (the Stay Order), granting in part Aloha's Motion for Stay. In pertinent part, the Stay Order suspends the requirements of the Order to implement the aforesaid PSC-mandated water treatment process pending resolution of the appeal. To the extent the petition could be deemed a motion for reconsideration of the stay, it was filed prematurely, and the time for filing such motions having passed, the petition is untimely.

6. In the event that "SIGNIFICANT RESOLUTION OF THE PROBLEMS DOES NOT OCCUR by June 30, 2003 even after the institution of additional processing methods,"(sic) the petition requests that the PSC "sequester the Seven Springs Area from Aloha Utilities and make it a part of the service area of Pasco County water utility system."

7. The PSC does not have the jurisdiction to grant the latter relief requested. The Legislature has never conferred upon the PSC a general authority to regulate public utilities. The

PSC has "only those powers granted by statute expressly or by necessary implication." Deltona Corp. v. Mayo, 342 So. 2d 510 (Fla. 1977) Any reasonable doubt as to the lawful existence of a particular power must be resolved against the exercise thereof. Cape Coral v. GAC Utilities, Inc., 281 So.2d 493 (Fla. 1973)

8. Aloha is statutorily required "to provide service" to the area described in its certificate of authorization within a reasonable time. Further,

> [i]f the commission finds that any utility has failed to provide service to any person reasonably entitled thereto, or finds that extension of service to any such person could be accomplished only at an unreasonable cost and that addition of the deleted area to that of another utility company is economical and feasible, it may amend the certificate of authorization to delete the area not served or not properly served by the utility, or it may rescind the certificate of authorization. Sec. 367.111(1), Florida Statutes

The foregoing statute clearly addresses the failure of a utility to provide service availability within its certificated service area. This a far cry from deleting territory of a utility consistently found to be in compliance with all environmental standards promulgated by the Florida Department of Environmental Protection, on the basis of a failure to implement a water treatment standard imposed by the PSC, and transferring such territory to Pasco County, a nonjurisdictional service provider. The PSC lacks such jurisdiction.

9. The customers do not have standing to seek the "sequester" or deletion of a portion of Aloha's service area to be made a part of the service area of Pasco County. The Florida Supreme Court has held that"[a]n individual has no organic, economic or political right to service by a particular utility merely because he deems it advantageous to himself." Storey v. Mayo, 217 So. 2d 304, 307-308 (Fla. 1968) No other support having been alleged, the petition should be dismissed for lack of standing.

WHEREFORE, Aloha Utilities, Inc. Requests that the petition filed in the above docket be dismissed.

Respectfully submitted this 5th day of September, 2002, by:

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Attorneys for Aloha Utilities, Inc.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via U.S. Mail (*hand delivery) this 5th day of September, 2002, to:

Lorena Holley, Esquire*
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0873

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue
New Port Richey, FL 34655

Stephen C. Burgess, Esquire*
Office of Public Counsel
111 Madison Street
Tallahassee, FL 32399-1400

State Representative Michael Fasano
Florida House of Representatives
8217 Massachusetts Avenue
New Port Richey, FL 34653

F. Marshall Deterding

dismiss.mot

PARTIAL TRANSCRIPT OF PSC CONFERENCE ON AUGUST 20, 2002
DOCKET NO 020413-SU

Ms. Suzanne Brownless, attorney for Aloha, discussing the penalty recourse available to the Public Service Commission.

Ms Brownless(B): We believe that the fine mechanism and the requirements of section 367.161.(2) are what is appropriately applied here. Obviously, there's two parts to 367.161, that there must be a willful violation and that there must be a failure of the utility to comply with an order or rule of the Commission. While we do not concede that Aloha willfully violated this Commissions directive to file a tariff on service availability, we certainly did not file the tariff and we take responsibility for that and we've never made any bones about that. It was a mistake on our part and we acknowledge it.

The penalty provision, what you can do under 367.161. (2): You can do three things; you can fine us $5,000 a day for each offense, each new day constituting a separate offense. **You can amend our certificate, you can suspend our certificate, and you can revoke our certificate**. Those are the remedies that you have available to you when you believe that a utility has failed to follow your rule or order. You cannot impute CIAC, you cannot prohibit us from back billing customers, you cannot reduce our return on equity, you can do what is in the statute.

This is a penalty statute, it's strictly enforced, it's strictly interpreted and you may only do what the legislature empowers you to do. Obviously, our settlement says that no CIAC be imputed for the service availability charges that were not back billed. It says that there will be no back billing of developers and there will be no imputation of CIAC. Obviously this is a negotiated agreement between the developers and the utility. The signatories of this settlement agreement as presented, represent a majority of the developers in Aloha's service territory. They also represent a block of Aloha's customers. Developers are

customers of the utility, just as rater payers, or people who take water and sewer service from the utility are customers.

So we believe that on the whole, this represents a good compromise of all the issues and it is an appropriate use of 367.161. (2). It uses the appropriate mechanism when the utility has made a mistake. It balances the interests of all the customers and we're willing to enter into it and obviously have done so, and we ask the Commission to accept it.

Commissioner(C): Ms Brownless, Could you explain why you do not believe the commission cannot impute the CIAC?

(B): Well, it's quite simple. I think that your ability to penalize the company as the, um, I'm going to read you the statutory language. It very clearly sets forth what the Commission can do.

It says "the Commission has the power to impose upon any entity, subject to its jurisdiction, this chapter, and that is found to have refused to comply with, or to have willfully violated any lawful rule or order of the Commission or any provision of this chapter, a penalty for each offense, not more than $5,000 which penalty shall be fixed, imposed and collected by the Commission, **or <u>the Commission may for any such violation, amend, suspend, or revoke, any certificate of authorization issued by it.</u>"**

I can read the rest but basically the rest says that such a fine would be, constitute a lien and that it's enforceable by the Commission as a statutory lien under Chapter 85 and that collected penalties pursuant to the chapter will go to the General Revenue Fund unallocated.

This is a penalty provision. The Commission only has the statutory authority, which the legislature grants it. You have no inherent statutory authority. Penalty provisions are by means of statutory construction, strictly enforced. You can neither add to them nor

subtract from them. So, if you determine that we have failed to file your, uh, that we have in fact, violated you order by failing to file the tariff, and we did fail to file the tariff, we don't make any bones about that, then this is what you are restricted to doing.

Transcription note: **Emphasis added** by Dr Kurien

PRESENTATION TO
THE PUBLIC SERVICE COMMISSION OF FLORIDA
NOV. 19, 2002

First of all, I would like to thank the Commissioners for allowing me to make this presentation to them. I want to emphasize that I am just one among 1491 individual customers who sent in a petition to you on July 15, 2002. On this occasion I want to clarify that I represent no one other than myself.

I am here today to request in all earnestness that the Commissioners do not accept the recommendation of the PSC staff that consideration of this petition be held in abeyance until the first District Court of Appeals renders an opinion on Aloha Utilities' appeal of the Commission's final order dated April 30, 2002. Instead, the Commission should proceed with a consideration of the customers' petition as soon as possible and set a specific date today for a preliminary step in establishing its reasonableness by an audit of the quality of the water that is delivered, so that the reasons for its **intermittent substandard** character can be discovered. This should be accomplished irrespective of when Aloha's appeal would be considered by the DCA or the nature of the outcome of that appeal.

The PSC Staff has offered as its reason for abeyance the belief that the "issues raised in the Customer Petition are inextricably entwined with the Final Order currently on appeal". I disagree with that conclusion, because the petition is primarily a request to establish the validity or lack thereof of the reasons that we have put before you to get relief from being "captive customers" of Aloha. We further requested you to give us a voice in all measures taken to improve water quality, and to remove the customers from Aloha's service territory as a last resort. That is why our request has been made contingent on the possibility of continued failure of Aloha to improve water quality

even with a new technology, rather than on whether or not Aloha accepts the specific methods recommended or demanded by PSC to improve water quality. In view of the unfriendly attitude of Aloha towards its customers and the insistence that the quality of its water is already satisfactory when it is not, we want to have a say in what kind of methods are being considered and whether they are appropriate. Ultimately, we the customers are the ones who have to meet the financial cost of any improvements and suffer the consequences of poor quality of water if that should continue.

I would first like to give you the reasons why I think it is urgent to institute a preliminary step without any further delay and what that step should be if you plan to considering this petition at all. After that I will present my arguments to counter the PSC staff's belief that the issues raised in the petition are inextricably entwined with the Final Order currently on appeal. Then I would appraise you with the consequences of delaying the relevant initial step.

My investigation during the last year has convinced me that under the fluctuating parameters of raw water, especially the level of hydrogen sulfide, and with the limited physical facilities and the sole use of chlorine as its processing methodology Aloha Utilities ***does not and cannot meet on a continuous and constant basis*** the minimum standards for potable water set by FDEP. If they could meet the standards **at all times**, then the customers who submitted the petition would not have experienced the problems that they have suffered for almost a decade. It would be possible now to prove on a very rigid scientific basis, given an opportunity to do so, that ***intermittently*** the quality of water delivered to the customers who have complained of black water or rotten-egg smell has been **substandard**, because more generically the delivered water that is processed from raw water pumped out of Wells 8 and 9 in our service area cannot meet the standards of **adequate disinfection** at all times especially under some specific conditions which are not unusual or unique. This is related to the dual role that chlorine plays in the processing of water. First, it acts as an oxidizing agent that

removes hydrogen sulfide from raw water. Secondly it is also the disinfecting agent that kills bacteria that are present in raw water. The chemical reaction between hydrogen sulfide and chlorine takes place instantly, but the disinfecting process is a slower and time dependent phenomenon. So when hydrogen sulfide concentration is high, all the chlorine that is injected is consumed by the hydrogen sulfide and none will be left to carry out the disinfection process.

Like every other water utility which is regulated by the PSC, Aloha has to maintain a free chlorine residual concentration of **at least 0.2mg per liter at all times and at even the most distal portion of its distribution system.** I suspect on the basis of information available that Aloha's physical facilities and its methodology at the present time are inadequate to maintain this mandated minimum free chlorine residual levels in delivered water **at all times and in all areas of the distribution system, even if the maximum capabilities of the present system are used because of fluctuating and high hydrogen sulfide concentrations in water from wells 8 and 9.** The Administrator of the drinking Water Program in Tallahassee has admitted that I am correct in this conclusion.

This is a very important and critical observation with very serious implications and the PSC must address a verification of this **without any further delay.** It is after a history of complaints over a decade that the customers including myself have recently appealed to the PSC to take some definitive drastic action. In the past, the PSC itself had never questioned the adequacy of the processing methodology or the physical facilities that Aloha used in spite of the persistent complaints of customers about poor water quality. Now it is almost certain that the lack of sustained disinfection is the major cause of what ultimately gives rise to the outcomes that the customers are complaining about: namely 'black water', rotten-egg smell and perhaps even pin-hole leaks, because all these can occur in the domestic plumbing only when large amounts of hydrogen sulfide are released *de novo* and *in situ*. The presence of sulfur reducing bacteria (SRB) is the

critical factor for this event, because it is the conversion of sulfate present in the delivered water into hydrogen sulfide by the SRB that generates the rotten-egg smell. This *in situ* production of hydrogen sulfide is also the major cause of corrosion of pipes yielding the black precipitate of copper sulfide in domestic plumbing. After the 1998 investigation of 'black water' done by FDEP in the Seven Springs Area, Aloha itself had admitted that one major cause for 'black water' formation is the presence of SRB in domestic water. However, the significance of the observed, but unexplained 15-20% positive cultures for SRB at the point of entry before the water had gone into the domestic plumbing was not understood till recently. The obvious conclusion that I as person with an understanding of bacteriology has drawn is that **intermittently** the delivered water contains live SRB when it reaches the home of a customer and that the subsequent colonization of domestic plumbing by the bacteria leads to the rotten-egg smell, and 'black water.' This must be due to an inability to maintain adequate levels of chlorine in the delivered water **at all times**.

Let me proceed to illustrate this based on the measured levels of hydrogen sulfide in raw water at well 9 on certain specific dates in the year 2001. The laws of chemistry have established that to remove 1 mg of hydrogen sulfide from water, 8.68 mgs of chlorine are required. To have mandated chlorine residual of 0.2 mg of chlorine per liter of delivered water, at least 8.88 mgs of chlorine must be injected for each milligram of hydrogen sulfide. The maximum capability of the chlorinator at Well 8 can remove only 1.46 mg of hydrogen sulfide when water demand is 1000 gallons per minute. The chlorinator at Well 9 can remove only 2.92 mg of hydrogen sulfide at the same water demand. After those levels of hydrogen sulfide in water, there will be no free chlorine residual left in the delivered water. Based on values reported in the 2002 Water Facilities Upgrade Report on Aloha Utilities: Section of MIEX PILOT TESTING: APPENDIX C, sulfide levels in raw water on certain days between April 12 and July 10, 2001 ranged between 3.93 mgs/liter and 6.71 mgs/liter at Well 9 which has a maximum conversion capability of only between 5.84mgs/l and 2.92 mgs/l of hydrogen sulfide at

water demand rates of 500 gallons and 1000 gallons per minute respectively. **When water demand was at or higher than these values, there would have been no free residual chlorine in the delivered water to provide disinfection, but there would have been significant amounts of hydrogen sulfide in the water.** On how many other days such a situation arose at well 9 is unknown, but it could not have been too infrequent. On June 14, 2002 I sent a request to Mr. David Porter, water Engineer for Aloha, requesting him to explain to me how at a constant injection rate of 5 mg of chlorine per liter that was used at that time in the Aloha processing system, it could have oxidized 1.8 mgs of hydrogen sulfide in Well 8 and 2.9 mgs of hydrogen sulfide in Well 9 without free chlorine residual dropping to zero. **I am still waiting for an answer!** The sulfide levels were measured by the certified Southern Analytical Laboratories and submitted to the PSC in October 1999. We do not know how many days in the past decade water containing hydrogen sulfide and inadequate free chlorine residual has been delivered to customers, as we do not know what the hydrogen sulfide concentration in raw water was on a daily basis and whether the conversion capability of the chlorinators at wells 8 and 9 were being exceeded. If Aloha had been using an injection rate of 5 mg of chlorine per liter of raw water, it is very likely to have been fairly frequent, as that dose of chlorine can remove only 0.58 mg of hydrogen sulfide. At and above that level, there would have been no free chlorine residual.

This is a **very serious situation** that the PSC must address **without further delay**. That is why after a decade of complaints about black water and rotten-egg smell, we feel that there is an urgency to tackle this situation and hence my request to you to act expeditiously. You have during the last ten months since the hearing in January 2002 has been very proactive towards a resolution of customer complaints. Hence we cannot understand the present recommendation for a postponement of the consideration of our petition. Every day of delay continues the risks that the customers have been exposed to during the last decade and increases the risk of 'black water', persistence of hydrogen sulfide smell and the likelihood of pipe failure.

Without any further delay, we need an investigation based on scientific principles to establish whether Aloha's claim that it does "provide clean, clear and safe water" is accurate or whether it is merely wishful thinking! **PSC is the only regulatory authority, which has the power to investigate, inspect, examine and test whether the claims of Aloha are legitimate and determine the role played by the limitations of the methodology and physical facilities Aloha uses for water processing.** So far Aloha Utility has refused to undergo such an investigation. The customers have subjected themselves in the past to a research project to determine the possible causative factor for black water. **Therefore, there is no legitimate reason for Aloha <u>not</u> to submit its methodology and processing facilities to a similar investigation or for PSC to order it.** If Aloha cannot maintain an adequate disinfectant level of chlorine **at all times** after taking into account the chlorine demands of fluctuating hydrogen sulfide levels and total organic carbon in raw water, then it must be concluded that the use of chlorine as the **<u>sole</u>** method for processing water is inadequate for maintaining the standard for water quality. That is the conclusion that I have come to. But Aloha stubbornly denies the validity of this conclusion.

Therefore, a determination of whether Aloha's current methods and facilities for water processing are adequate is an essential first step in the consideration of the petition of which I am a signatory. *If you think that the customers have an urgent right to know whether such is the case or not, I cannot see any reason whatsoever for denying me this request at this time; a denial of an independent audit will have as its accompaniment injury to me and my property and to other customers.* I hope that in your considered judgement you will come to the conclusion that my co-signatories and I do have such a right and that we should not be kicked around as Aloha has done for the last ten years. Four months after the petition has been submitted with the signatures of close to 80% of all the customers in a certain part of the Seven Springs Service Area of Aloha Utilities, the PSC commissioners need a much more robust reason than that provided by its Staff for

abeyance of our petition for an unknown period into the future. The belief of the PSC staff that "the issues raised in the customer petition are inextricably entwined with the final order currently on appeal" is not accurate, because the quality of the water delivered is not affected by whether a rate increase is granted or not, whether the salaries of the officers of Aloha are reduced or raised, whether a Citizen Advisory Board is appointed or not, or whether Aloha's customer service continues to be extremely poor as documented by PSC or improves tremendously. **In fact none of the issues addressed in the Final Order or the appeal has any bearing on the petition, which is based entirely on the quality of the water the customers receive now and whether the problems reported by the customers are in any way causally related to it. The Appeal at the DCA is not about the quality of water or whether the standards instituted by the FDEP are being met.**

Suppose for a moment that the DCA should rule in favor of Aloha, does that mean that my fate is sealed with that decision of a legal authority who like you did not find out through an audit whether the customers **or** Aloha is telling the truth in this matter of water quality? I have consulted with a number of water engineers in this area including the Administrator of the Drinking Water Program of the FDEP who have no axe to grind to comment on their assessment of Aloha's water processing methods and physical plant. I have yet to find one who would give them a passing grade. I am willing to have you to reject this petition out of hand if you can show the customers and me that our request for a graduated response is unreasonable, illegitimate and unjust. Before you accept the staff recommendation, consider whether you are justified in delaying the first essential step in the consideration of this petition, namely establishing its *de facto* reasonableness. This can be established by an independent audit of the customers' claim that water quality is poor and the explanations I have provided for that situation, namely the limitations of the method and inadequacy of physical facilities, are accurate. You cannot accept Aloha's unproven claim that the "water is clean, clear and safe" as adequate to deny us an audit. Before you agree with your staff

to postpone consideration of the petition **at this time**, you have to establish that a step such as an audit is not urgent and is not necessary. To do so you must have an independent and cogent demonstration that quality of water is good, which you don't have, because if you did, you would not order Aloha to research some new method for processing water. If you decide to agree with Aloha without independent verification of its claim and against our more reasoned arguments that the water quality is intermittently poor, then you must tell us to our face that we do not deserve even the courtesy of an audit for establishing scientific accuracy in this matter. **If an independent audit proves me wrong, then you will have good reason for postponement or even denial of any further consideration of the petition because the customers would not have established a foundation for proceeding any further.** If on the other hand, you have already decided that you will consider our petition and has established its *prima facie* reasonableness, which I presume you already have done in granting it a docket, then you do not need the approval of Aloha or even another legal authority to proceed with the preliminary step of establishing the *de facto* reasonableness of the grounds for this petition. It is entirely within your power and province to do so according to the **Florida Statutes 367.121.2**. Since a preliminary audit to establish the reasonableness of the grounds for this petition does not automatically necessitate the granting of the specific relief that the petitioners have sought there is no justification whatsoever for postponement. For the same reason, the argument that the PSC may not have jurisdiction to grant the specific relief that the customers have sought as the final solution, if all else fails, is also totally irrelevant at this stage. The possibility that the PSC can claim the support of the DCA for its actions in the Final Order if Aloha's appeal is denied, or the likelihood that the ability of Aloha to persist in its stone walling efforts would be enhanced if its appeal succeeds, should not play a role in deciding whether a preliminary consideration of the petition **at this time** in the form of an independent audit. The possibility of the outcome of the appeal may introduce a bias or a prejudice in the further evaluation of our petition is itself a powerful argument not to associate the decision concerning this petition to Aloha's appeal before the DCA.

If you feel that in spite of your having eminent authority to do so, you must delay even a preliminary step in the consideration of this reasonable petition, then please understand that you are extending into an unknown future the psychological, physical and financial injuries of the customers of Aloha which they have been suffering for a decade. Let me tell you as a person who has interviewed a number of dissatisfied customers that the majority of them are at the verge of incredible frustration, anger and enormous psychological trauma, not to speak of the physical and financial debility that some have experienced, which you and only you have the power to reduce by expediting a consideration of this petition. I hope you will not fail the customers in that responsibility.

Thank you for your patient listening.

New Port Richey
November 19, 2002

V. Abraham Kurien, M.D.

Aloha Utilities

Seven Springs Water System

Technical Review of Production and Distribution of Drinking Water in the Seven Springs Water System

Phase I
Analysis of monitoring and operations data

Submitted to
Attorney Jack Shreve
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111 W. Madison Street # 812
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Submitted by
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August 2003

Executive Summary

The Seven Springs Water System, operated by Aloha Utilities, has been plagued by recurring occurrences of "black water" within residential plumbing systems since the mid 1990s. The purpose of this report is to assess available information on the Seven Springs Water System and identify potential operational and treatment modifications that could be used to reduce the incidence of black water.

The report has been produced in two phases. Phase I includes extensive background information and a compilation of all available water quality and operations data on the Seven Springs system. Phase II of the report will include the results of supplemental testing conducted during August and September 2003.

The water supply for the Seven Springs Water System is derived from 8 wells located in southeast Pasco County. The treatment system at each well consists of corrosion control using a polyphosphate corrosion inhibitor followed by chlorination. Residual chlorine levels are monitored at each well and throughout the distribution system. The system has minimal capacity for storage of water.

The Seven Springs Water System, as it is currently operated, meets all relevant water quality regulations for potable water systems imposed by the USEPA and the Florida DEP. However, there is a need to reduce the recurrence of black water problems within the distribution system. In addition, upcoming regulations for disinfection byproducts and risk management will necessitate modifying the existing treatment system. Therefore, it is essential that any treatment upgrades address black water problems in consort with improvements needed to deal with upcoming regulatory requirements.

The major conclusions from this Phase I report are:

1. Limited monitoring data are available on source water quality for the Seven Springs Water System.
2. The highest levels of hydrogen sulfide in the untreated water are associated with wells 3, 8, and 9. Water from well 3 enters the system through the ground storage tank where it is mixed with water from wells 1, 2, and 4 thereby diluting the concentration of sulfur. Conversely, water from wells 8 and 9 is not mixed with water from the rest of the system, essentially localizing the impact of these wells to a specific portion of the system.
3. A more comprehensive program for routine water quality monitoring should be implemented by the utility to facilitate improved process control and develop design data for treatment upgrades.
4. Under the current treatment configuration, improved control of chlorine residuals in the distribution system may reduce the incidence of black water by controlling the growth of sulfate reducing bacteria.
5. Based on the data available, supplemental treatment for removal of hydrogen sulfide from wells 8 and 9 may help to alleviate some of the black water concerns.

6. Based on the water quality data available, there does not appear to be a need to implement supplemental treatment for hydrogen sulfide removal from wells 1, 2, 3, 4, 6, and 7. However, additional storage capacity would help to provide consistent water quality throughout the system.
7. Due to the number of confounding variables involved in the formation of black water, it is not possible to guarantee that the problem can be completely eliminated with the current inventory of residential plumbing materials and point-of-use water treatment systems.
8. Efforts to address water quality improvements in the Seven Springs Water system have been stymied by the lengthy debate surrounding the black water issues (over 8 years). The absence of substantive treatment or operational changes has resulted in an untenable situation for the customers and the utility. There is a need to move forward with a resolution of this problem.
9. The formation of the Citizens Advisory Committee has been instrumental in establishing a dialogue between the utility and the customers. These efforts should be fostered in a productive manner.

Recommendations

Based on analysis of the existing data, there are several short-term and long-term recommendations that can help to improve the situation in the Seven Springs Water System. The allocation of funds for supplemental monitoring and process upgrades will facilitate water quality improvements.

Short term recommendations (0-6 months)

In the immediate future, several issues can be addressed:

1. *Assess the effect of maintaining higher chlorine residuals (3 mg/L) at wells 8 and 9 on the incidence of black water.*
2. *Initiate routine water quality monitoring of hydrogen sulfide in the untreated and treated water at each well to determine the degree of variation that exists within each well (particularly wells 8 and 9).*
3. *Initiate monitoring of chlorine demand at each well to assess the degree of water quality variability.*
4. *Initiate the use of on-line monitoring for chlorine residuals and other parameters at all treatment facilities.*
5. *Develop a database for water quality and operations data.*

Longer term recommendations (6 months to 2 years)

To implement longer term changes, additional funds and support will be needed. Some preliminary recommendations are presented below.

1. *Design a treatment system to reduce hydrogen sulfide at wells 8 and 9 based on current monitoring data. The treatment goal should be based on water quality at the entrance to the distribution system.*
2. *Set up a small-scale demonstration system (10-50 gpm) of the proposed treatment. The demonstration system should be used to provide supplemental design data and to assess the quality of water exiting from the treatment system. A key issue is to assess the potential impacts of the treatment system on water corrosivity, copper release, disinfection, and disinfection byproduct formation.*
3. *Develop remote monitoring capability, such as a SCADA system, to improve process control throughout the system.*
4. *Develop a hydraulic model of the distribution system to facilitate optimization of flushing, control of chlorine residuals, and assessment of disinfection byproduct formation.*
5. *Optimize the flushing program with respect to location, time of day, and volume of water used. Assess the potential for using unidirectional flushing to improve water quality within the distribution system, particularly in the area served by wells 8 and 9.*
6. *Conduct bench-scale testing of chloramination to assess sulfide conversion reactions.*
7. *Develop a plan for implementation of chloramination in the portion of the system that is consecutive to Pasco County.*

Aloha Utilities

Seven Springs Water System

Technical Review of Production and Distribution of Drinking Water in the Seven Springs Water System

Phase II
Analysis of well water, treated water, and distribution system water

Submitted to
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February 2004

Executive Summary

The Seven Springs Water System, operated by Aloha Utilities, has been plagued by recurring occurrences of "black water" within residential plumbing systems since the mid1990s. The purpose of this report is to evaluate water quality factors that impact the Seven Springs Water System and identify potential operational and treatment modifications that could be used to reduce the incidence of black water. The report has been produced in two phases. Phase I includes extensive background information and a compilation of all available water quality and operations data on the Seven Springs system. Phase II of the report includes the results of supplemental testing conducted during October and November 2003.

The water supply for the Seven Springs Water System is derived from 8 wells located in southeast Pasco County. The water quality of the wells is typical for this region of Florida. The treatment system at each well consists of corrosion control using a polyphosphate corrosion inhibitor, followed by chlorination. Residual chlorine levels are monitored at each well and throughout the distribution system. The system has minimal capacity for storage of water.

The primary water quality concern associated with the Seven Springs Water System is control of hydrogen sulfide in the source water. Under the current treatment approach, the hydrogen sulfide is converted to elemental sulfur, iron, sulfides, polysulfides, and sulfate by chlorination at each well. The various forms of sulfur can react biologically or chemically within the distribution system or residential plumbing to either reform hydrogen sulfide or to react with dissolved metals to form insoluble particulates. These reactions are exacerbated by warm water temperatures and tend to occur more consistently in water lines that are used infrequently. Point-of-use treatment systems can further complicate the situation by reducing the capacity to control microbial growth by removing disinfectant residuals in conjunction with removal of minerals that can provide a protective barrier within pipelines.

While the current treatment system is in compliance with Federal and State requirements for potable water systems, the water tends to react with metals in pipelines and hot water tanks to form black insoluble particles. The use of alternative treatment approaches to control hydrogen sulfide may help to reduce the incidence of black water formation. In addition, upcoming modifications to convert the disinfection system from free chlorine to chloramines will impact the stability of sulfides within the distribution system.

The major conclusions from this Phase II report are:

1. The levels of hydrogen sulfide associated with each well are somewhat variable. Wells that have higher levels of hydrogen sulfide also tend to have higher levels of iron and ammonia.

2. Levels of hydrogen sulfide detected in the untreated water ranged from 0.6 to 3.95 mg/L. A trace amount of hydrogen sulfide was detected in the influent to the main plant (0.12 mg/L) during the November sampling.

3. Based on testing of the treatment at each well, chlorine is effective for converting the hydrogen sulfide to elemental sulfur, polysulfides, and sulfate.

4. For the two sets of samples that were collected for this project, there was no evidence of hydrogen sulfide in any of the treated water samples collected at the wells.

5. There was no evidence of chlorine in the untreated water from any of the wells.

6. The concentration of suspended solids in all of the water samples (untreated, treated, and distribution system) was below detection limits (< 1 mg/L)

7. The dominant elements in black water particles that are formed within residential plumbing include sulfur, iron, copper, phosphorus, manganese, calcium, and aluminum.

Recommendations

Several alternatives should be considered to improve water quality within the Seven Springs system. The impacts of alternative treatment systems on the formation of black water should be tested on a pilot-scale system. While several treatment technologies may be effective for improving water quality, there are constraints due to the need for water conservation, the lack of capacity for discharge/disposal of byproducts or reject water, and economics. Prior to final selection of a treatment approach, it is important to assess the potential impacts of the treatment system on water corrosivity, copper release, disinfection effectiveness, disinfection byproduct formation, and the potential for production of "black water". Treatment options that warrant consideration are summarized below.

1. **Packed tower aeration.** *Packed tower aeration is a physical/chemical treatment system in which a chemical is added to the water to reduce the pH (carbon dioxide or a mineral acid) and the hydrogen sulfide is transferred from the water to air. This process needs to be coupled with a gas scrubber to control the release of odorous compounds into*

the air. In addition, due to the potential for the packing material to become clogged from biological growth, there is a need for frequent maintenance and/or filtration.

2. **Alternative oxidants.** *Alternative oxidants can be used to improve the consistency of hydrogen sulfide conversion reactions. The most likely candidate oxidants are hydrogen peroxide or ozone. The presence of iron in the source water can serve as a catalyst for this process. Supplemental control of pH may be necessary to ensure that the hydrogen sulfide is converted to sulfate. Another advantage of using alternative oxidants is that the chlorine demand of the water will be reduced allowing for more effective use of chloramination. In addition, the supplemental oxygen in the treated water will improve the taste of the water and help to reduce the growth of anaerobic microorganisms within the distribution system.*

3. **Membrane technologies.** *Membrane technologies can be coupled with chemical oxidation to remove particulate forms of sulfur and to improve water quality. The use of membrane processes requires a reliable energy source and a means for treatment/disposal of the reject water.*

PARTIAL TRANSCRIPT OF
ALOHA'S SECOND CUSTOMER WORKSHOP

SEPTEMBER 2, 2004

DR AUDREY A. LEVINE: The oxidation technology is widely used and the use of hydrogen peroxide in this application is not widely used for a number of reasons. First of all because chlorine is very cheap and chlorine is the number one oxidant used. The reason it has become competitive in recent times is because water systems are being forced to switch from gaseous chlorine to liquid chlorine. To go from 100% chlorine to 10% chlorine. This boosts up the cost of chlorine forcing people to look at alternative oxidants. I have to say that I get lots of questions, lots of people are very interested in this is because the industry is seeking alternatives to chlorine for a number of reasons. Besides the cost, chlorine also causes reactions and forms chemicals, which are called disinfectant byproducts, so there is a lot of interest in using alternatives to chlorine. When you go down what are the alternatives, there's ozone, which Orange County Utilities uses for this exact situation. So Orange County Utilities in (....?....)oxidant they use Ozone so ozone is an alternative but is much more expensive and it also requires high levels of materials, so the cost is higher and operator training is more significant.

With respect to Hillsborough County, I did a project there, funded by (...?...) two years ago. Hillsborough County has a very different system and a very different water quality problem. The problem in Hillsborough County is they have a very high turbidity in their water so Hillsborough County was looking to alternatives for their hydrogen sulfide removal system. They have in place an aeration system, which is kind of a de facto biological aeration system. So if you go up into the aeration towers you see these strings of bacteria there that, for which there is not a mechanism to remove out of their systems, so periodically they get very high turbidity in their water, so they wanted to come up with an alternative method of treating that and we looked at a variety of

options. The main focus of that testing that we did was on filtration so basically our goal there was to try and form particles that we could remove with a filter. That is very different than the case we have here because they have a very big facility, 25M/gpd plant. They have a capacity for filtration, they have a place to which to discharge the filtered water waste materials and in the cases here, these are very small well sites and there is a absolutely no capacity to discharge waste.

So for example, speaking of alternative ways, membranes are also a way to filter the water. Again there's also a waste stream associated with those and so there's a need to find a way to dispose of that water. And also membranes are expensive and (.....?.....). So, when you look at the site and what are the alternatives, an aeration system, you can't have that at a lot of sites. You need a centralized facility for an aeration system. You can't have 8 aeration systems and in fact, you wouldn't want an aeration system in you neighborhood. So to put that in place you need a centralized plant and while it's not as costly, it's not cheap and aeration systems also have their own share of problems. There are several of them that have gone into the area. Pinellas County put one in a few years ago. That is a technology that is widely used, aeration, but it's not perfect, there are problems with it, one of them being the generation of turbidity. So when you go down these lists and you say, well what can you do at these well sites that is not going to cost a lot but will improve the overall process and make it more stable. You have a finite list of ways with which you can treat the water, so it boils down to hydrogen peroxide, ozone or permanganate. Ozone has a lot of advantages to using it, however, it's expensive and it has a higher operating cost. Potassium permanganate is very good also as an oxidizing chemical but if it's not dosed properly, the water turns bright pink and so while black water in not really desirable, neither is pink water. So permanganate is not used in this application because it's not practical. Every chemical used in drinking water has to be regulated by the National Sanitation Foundation and there is really not a lot of chemicals you can add to drinking water without a lot of risk. It's totally inappropriate and wrong to add any chemical that has health risks with it. Chlorination has health risks with it if you were to be exposed to it directly. The chlorine at the levels in water is safe. With ammonia, the current practice with the drinking water history, particularly here in Florida, is to add ammonia to the water. The reason for that is when you add ammonia to water,

it combines with the chlorine and forms something called chloramine. The chloramine is supposedly more effective at preventing bacterial growth in the distribution system. Every water system and the reason people are moving towards that, is that chlorine is very reactive and forms disinfectant byproducts. The regulations for disinfectant byproducts have become very strict over the past couple of years. One way to address the strictness of the regulations is to change from using chlorines directly to combined chlorines or chloramines.

One of the problems is you can't mix water that contains chloramine with water that contains chlorine. So Pasco County, for example, is switching to chloramines within the next year, so if that water is coming into the Aloha system, the water that it intermingles with has to also have chloramines and that's been the status quo around the Tampa Bay regions for the last couple of years. Pinellas was first to switch over, then Hillsborough, then Pasco and that's an ongoing issue.

So you are right, whoever said that about the chlorine and ammonia mixing together in your house. You don't want to do that, you don't want to generate the gas from that but when it comes to water treatment, it's a very standard process and it should be developed without risk associated with it and it is widely used. You can get water from the City of Tampa, Hillsborough County and Pinellas County; it all has chloramines in it.

MODERATOR: One of the questions that came up several times was where else has this technology been used? How can we be assured this is a tested, proven (...?...)

DR LEVINE: We're testing this process fairly aggressively. It's not been used for this specific application anywhere, locally or, but the reasons it hasn't been used is because there really hasn't been a driving force for it. So if because you look at the places where there are sulfite problems and you look at the places and the ways in which that is addressed, chlorine is the #1, on a small well site, chlorine is the #1 technology of a chemical that is used and there's really very few places and I think Orange County is the only one that uses ozone. But the fact that it's not used, it's

still, hydrogen peroxide is a very easy chemical to work with. It's a very low risk chemical. To me the water is a lot better through hydrogen peroxide than it is through with chlorine. Because if you put chlorine in the water it decomposed to chloride and so it adds chloride to the water whereas the peroxide doesn't add any dissolved solids to the water. We don't want to put a process in that won't work. There's no point in doing that and so we're doing fairly aggressive testing to insure that we can get (....?....)

MODERATOR: There was a question concerning, will this really end customers concerns about black water and peoples concerns about smell?

DR LEVINE: The black water question is one I've been struggling with for some time because it's hard to understand exactly what the conditions are that cause black water, but if the black water is coming in the water line that is coming into the house, it should cure the problem. The black water is being formed that is coming out of the hot water, then the potential for performing it probably won't change a whole lot because what happens in a hot water tank if the temperature isn't hot enough, microorganisms can grow and convert sulfate which is there anyway, into sulfide. Once the sulfide contacts metal it will form black water. It's pretty dramatic to see it but I've not seen it in cold water. So if it's a problem in a hot water tank than there's a couple of solutions, one is that if the temperature of the tank is higher that can prevent, in theory, the growth of microorganisms. But I can't say from the hot water side of the lines, I can't say that this will cure it, but if it's in the cold water line, the water should be, I can't say it will eliminate it 100%, but it should be much more consistent.

MODERATOR: If we go through this process to install the system and do all the testing and it doesn't meet the standards or quality than what are people's alternatives?

DR LEVINE: What's nice about this system is that it is somewhat modular. It's not like building a huge facility cause you're really at the plant center here. So within the context of the tools that

are available, the system can be tweaked to work better. For example, one of the things is that you have certain things you can control. You can control the chemistry of the water to some degree, so if for some reason, it will work, but if it doesn't work and we're going to do enough testing beforehand, that we're confident we can go forward, but if for some reason it doesn't work, there is within the system, there's relatively simple ways you can get it to wok. Water is very empirical and you can't just turn on a switch. You can't just (.....?.....) You need to get the parameters right. The system is flexible enough it should (....?....)

MODERATOR: I'm going to move this along. Is there anything else you want to say about adding chemicals? On the risks we've touched, anything else you want to say about adding chemicals that are safe other than chlorines and chloramines?

DR LEVINE: I just want to mention that to me the water using hydrogen peroxide is safer than chlorine, I think, and chloramines that's a decision that's actually being pushed by Tampa Bay Water. Because Tampa Bay Water is doing that, all of their customers (.....?.....)

MODERATOR: People ask questions, okay you're doing this to enhance water quality, what's that going to do to the rate payers costs?

STEVE WATFORD: Wish I could give you a better answer at this time. I'll continue this part later

CUSTOMER (HH): I'd like Dr Levine, it was mentioned in the presentation that she's the leading technology expert in this hydrogen peroxide field. I'd like to know where the accreditation came from and was this title given by peer review or is it a self appointed title?

DR LEVINE: I don't think that was really mentioned in the presentation.

CUSTOMER (HH): Somebody did mention it in the presentation that you were one of the leading technology experts in the hydrogen peroxide field.

MODERATOR: I think your experience with water systems and accreditation in water is what we're looking for.

DR LEVINE: I've worked with water for a long time and lots of water systems. Water is complicated and yes there is a water community out there and what gets done is peer reviewed and is discussed and debated in conferences. There's the American Water Association, there's a lot of interaction, the work does not get done in a vacuum or in isolation, so all the work that is done is discussed. The people who manufacture hydrogen peroxide, they've got experts involved so there's lots of talented people that are involved in this, how the process works.

CUSTOMER (HH): I agree with you but I would like to remind you that the technology we are discussing tonight is hydrogen peroxide. Where have your (.....?.....) success been with this treatment process? Does Hillsborough County not use it anymore because it didn't work well?

DR LEVINE: The discussion process in Hillsborough County was what I said before, is that the questions on the water quality issues in Hillsborough County dramatically differed than here and we were actually looking at filtration not a pure oxidation process. So we were looking at using filters to filter out particles that were intentionally formed with hydrogen peroxide. Hillsborough County because of the way water systems work in the area, has turned over the hydrogen sulfide control to Tampa Bay Water, who I think is, and I'm not exactly sure, originally they had a capital improvement project where they were going to try upgrading their plant. They've since decided not to do that and near as I can tell they passed that over to Tampa Bay Water. So it wasn't that the technology was rejected. We basically were testing all alternatives with the goal of improving water quality just like every place. The problem there was bacteria. They were having a recurring bacterial problem and without filtration there's no barrier between the water that comes out of their reactors, in a certain sense, between aeration tower and their distribution system, so we were looking at filtration and actually started the project by looking at just filtration of water coming out of their aeration system and then decided to try some other alternatives. We also looked at

ozone and a host of other things but the politics of the decision changed and also management of their water department changed and a lot of other things changed so the decision really had nothing to do in the final analysis with or without this technology. So the testing we did was just a does it work type of thing. This was something that could work in this context.

CUSTOMER (HH): So in this proposed format, the hydrogen peroxide method, you have really not completed any municipal project that is currently in service that uses your proposed system.

DR LEVINE: It's not my proposed system.

CUSTOMER (HH): Yes or no, that's all I ask.

DR LEVINE: No, that's correct. There are no other systems that have this media at the moment.

LETTERS

Aloha president deaf to clients' water problems

Re: Water utility vows to improve, fight takeover, July 22 letter

Editor: We never write to the newspaper, but we must respond to Steve Watford's claim on behalf of Aloha that the people who complain are just: a "small number of disgruntled customers" unhappy with the water that Aloha provides.

Obviously, Watford wasn't listening to the 1,500 disgruntled customers who signed a petition and sent it to the Florida Public Service Commission to ask to be separated from Aloha.

Again, he wasn't listening to the disgruntled customers who packed the room at the April 8 hearing and spoke of 10 years of the black, foul-smelling water that they are forced to drink, cook and bathe in.

He wasn't listening, since he did not attend, when the disgruntled customers met at the Citizen's Advisory Committee Meeting on May 6, a group that had been formed to try to solve the Aloha/customer problem.

Mr. Watford hasn't been listening to the hundreds of customers who have had to look at and smell this disgusting water for the last 10 years. Aloha and Steve Watford have behaved in a totally irresponsible way as they rake in the dollars from the disgusting product they force upon us.

Janice and Jim Thompson, Trinity

Subject: SPTimes 7/28/04-letters (3)
From: Swerdnapj@aol.com
Date: Wed, 28 Jul 2004 06:52:51 EDT
To: akurien@attglobal.net, anotherdayinparadise@earthlink.net, charlienellen@gbronline.com, chise@tampabay.rr.com, cwlandmjl@msn.com, dickkkna2@bigzoo.net, donnaanddavid.vaurio@verizon.net, eow3rd@gte.net, floridatrap@att.net, gandpvd@aol.com, gloria.coogan@verizon.net, gphunter@verizon.net, h.hawcroft@att.net, jhgaul@verizon.net, rjlet42@hotmail.com, Swerdnapj@aol.com, taylorb@sanctum.com, wayneforehand@verizon.net, wday@enodis.com

The following three letters-to-the-editor appear in today's (7/28/04)
St. Petersburg Times, Pasco Times section, page 2.

John A.

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Aloha customers deserve upgrade and a review

Letters to the Editor
Published July 28, 2004

Editor: The attempt of the president of Aloha Utilities, in a July 22 letter to the editor, to present his company as a victim of the efforts of "a small group of disgruntled customers" is irony in its worst form.

Twenty percent of Aloha's customers have requested that the Public Service Commission delete them from the service area of Aloha, a monopoly utility. If they were not captive customers, many more also would have abandoned this utility long ago because of poor customer service and problems of black water and rotten egg smell. These complaints are not figments of customer imagination, but facts repeatedly documented by the PSC and the Department of Environmental Protection.

State and federal water standards do not take into account local variations in water chemistry. The responsibility to produce good quality drinking water has been left to utilities, which must choose a method suitable for local conditions. One major reason for poor quality water in some areas of Florida is the sole use of chlorination as the processing method for water containing high concentrations of hydrogen sulfide.

Neighboring utilities have introduced more appropriate methods and have significantly reduced the risk of black water, which is due to the corrosion of copper pipes by hydrogen sulfide. Aloha chose not to do this and legally claimed that it met all relevant state and federal standards.

An independent audit confirmed Aloha's process control as inadequate and upgrade of its processing method as essential. The customers have not opposed the new method Aloha has chosen, but have echoed the reservations of authorities in the field of water processing about the ability of this experimental method to significantly reduce black water and rotten egg smell in domestic water.

Customers who will pay for capital expenditures through rate increases must insist on a prudent review of the method before it is installed at a minimum cost of $4-million and a 44 percent projected increase in rates.

The Public Service Commission has expressed its readiness to hear the issues in an evidentiary hearing under oath. The petitioners look forward to this hearing and hope deletion will be granted. Aloha should consider deletion as a blessing in disguise as it will get rid of the customers Aloha accuses of being disgruntled—that is, "being upset without cause."

-- V. Abraham Kurien, New Port Richey

Sample water elsewhere to taste what can change

Editor: I'm surprised that in this day and age, people have to lug water home in jugs like our ancestors did in the old days. How can you change utility companies? Is it like switching cable television with a phone call? Is there a big lever they pull to switch from one water supply to another? I don't think so.

So what do you do? Come over to Forest Hills and talk to the pros. Our water

is good. Although the county has purchased the facility, there hasn't been a perceivable change.

-- Rudy Drouin, Holiday

More questions about Aloha, and desire to say goodbye

Editor: I, too, am an Aloha Utilities customer and not satisfied with the quality of my water or the high cost of water and sewer.

I have two questions, and hope some of your readers will respond with information. I always wondered why my sewer cost was more than my water, garbage and street lights combined. Someone told me that Aloha customers are charged a sewer charge for all water used, even if it is not necessarily disposed of in the sewer directly-for example, watering your lawn (on your designated day of course). Is this true?

Also, can someone please respond with a contact name and number for the person in charge of the petition to separate from Aloha? I would like to be disgruntled customer No. 1,501.

-- Shelley Lee, New Port Richey

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Subject: SPTimes 7/30/04-letters (2)
From: Swerdnapj@aol.com
Date: Fri, 30 Jul 2004 07:01:05 EDT
To: akurien@attglobal.net, anotherdayinparadise@earthlink.net, charlienellen@gbronline.com, chise@tampabay.rr.com, cwlandmjl@msn.com, dickkkna2@bigzoo.net, donnaanddavid.vaurio@verizon.net, eow3rd@gte.net, floridatrap@att.net, gandpvd@aol.com, gloria.coogan@verizon.net, gphunter@verizon.net, h.hawcroft@att.net, jhgaul@verizon.net, rjlet42@hotmail.com, Swerdnapj@aol.com, taylorb@sanctum.com, wayneforehand@verizon.net, wday@enodis.com

The following two letters-to-the-editor appear in today's (7/30/04)
St. Petersburg Times, Pasco Times section, page 2.

John A.

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A judicial hearing is needed in long battle with Aloha

Letters to the Editor
Published July 30, 2004

Editor: The recurrent battle between Aloha Utility and its customers is heating up once again! Opposing perspectives, each claiming to be true, are being published in the newspapers. The Public Service Commission has repeatedly documented that water quality in domestic plumbing has been poor for many years.

The question is no longer whether water quality can be improved. Everybody now agrees that it must be improved. Aloha did not do so for 10 years because it insisted that the water it provided was clean, clear and safe.

Now that deletion of service territory will be considered, Aloha has suddenly found the will to provide a solution. It even claims that it can do so at lower costs than nearby utilities, after insisting in 1998 that it would need a 398 percent increase in costs to provide water of comparable quality.

It is now time to have a judicial hearing in which both parties provide evidence under oath, which is what a PSC evidentiary hearing will achieve.

Let truth make us all free.

-- Robert Taylor, Trinity

Hydrogen peroxide treatment will raise water, sewer charges

Editor: As a retired registered professional engineer, along with other customers who are medical doctors and professors, I take issue with the Aloha president Steve Watford's published statement regarding "certain self-appointed water treatment experts."

Having attended a Public Service Commission staff meeting at USF, I asked the Aloha engineer, "What quality control organization and equipment do you have for the hydrogen peroxide water treatment?"

The answer, "We have equipment on order, and we plan to have USF and staff become our quality control."

Hydrogen peroxide has failed in other counties.

Customer water and sewer charges will escalate beyond imagination.

-- Robert Viduna, Trinity

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Water utility still making empty promises of better service

Editor: I was a customer of Aloha Utilities for a brief period while living in New Port Richey. I can empathize With Aloha's customers.

Even back then, some six years ago. Aloha was vowing to improve. If memory serves me correctly, it was making the same promises then that Steve Watford, president of Aloha Utilities, is making now. "^Sounds like it's time for the Public Service Commission to say adios, Aloha.

Bill dark. Hudson

Why won't Aloha, PSC let unhappy residents leave?

Editor: Aloha needs to hear our song. "Please release me: Let me go." It can not service our community. Its solution is only to say it doesn't have a problem.

The number of disgruntled customers is far, far greater than a few. It is certainty difficult for me to understand why the Public Service Commission doesn't do anything but give Aloha more time. The solution is so simple. Let us go!

Gene Paulin, Trinity

PSC needs to act swiftly on water customers'request

Editor: I am one of the few disgruntled customers to Whom Steve Watford referred.

I have been an Aloha customer for more than eight years. During that time, I have filed numerous complaints with Aloha and the Florida Public Service Commission. My complaints have been ignored by Aloha and the state.

Filing a complaint with Aloha is a total waste of time. They have one mantra, 'It's not our fault, but the problem is with plumbing inside your home." Yet during this time, Aloha, its consultants, the Public Service Commission, and the Florida Department of Environmental Protection have all been aware that Aloha supplies corrosive water to the customer's homes. During that time, all hid behind the legalisms and substandard state requirements. The product delivered by Aloha Utility is totally unacceptable.

The water that comes from the tap is black and has a pungent odor. This is not a product that a customer would purchase in the open market. If Aloha had to compete in the open marketplace with its product, it would have been out of business a long time ago.

Watford talked of a few disgruntled customers. In eight years I have never heard anyone say Aloha was doing a satisfactory job. Everything I hear is very negative when people speak of Aloha. There are more than 1,500 customers who signed the petition to be deleted from Aloha territory. That is more than a few.

The sooner the Public Service Commission acts to delete the territory the better off we will be with service from Pasco County Utilities.

Ed Wood, New Port Richey

FLORIDA PUBLIC SERVICE COMMISSION

COMMISSION CONFERENCE AGENDA

CONFERENCE DATE AND TIME: August 20, 2002, 9:30 a.m.

LOCATION: Room 148, Betty Easley Conference Center

DATE ISSUED: August 9, 2002

NOTICE

Persons affected by Commission action on certain items on this agenda for which a hearing has not been held (other than actions on interim rates in file and suspend rate cases) may be allowed to address the Commission when those items are taken up for discussion at this conference. These items are designated by double asterisks (**) next to the agenda item number.

Included in the above category are items brought before the Commission for tentative or proposed action which will be subject to requests for hearing before becoming final. These actions include all tariff filings, items identified as proposed agency action (PAA), show cause actions and certain others.

To obtain a copy of staff's recommendation for any item on this agenda, contact the Division of the Commission Clerk and Administrative Services at (850) 413-6770. There may be a charge for the copy. The agenda and recommendations are also accessible on the PSC Homepage, at http://www.floridapsc.com, at no charge.

Any person requiring some accommodation at this conference because of a physical impairment should call the Division of the Commission Clerk and Administrative Services at (850) 413-6770 at least 48 hours before the conference. Any person who is hearing or speech impaired should contact the Commission by using the Florida Relay Service, which can be reached at 1-800-955-8771 (TDD). Assistive Listening Devices are available in the Division of the Commission Clerk and Administrative Services, Betty Easley Conference Center, Room 110.

Video and audio versions of the conference are available and can be accessed live on the PSC HomePage on the day of the Conference. The audio version is available through archive storage for up to three months afterward.

Agenda for
Commission Conference
August 20, 2002

ITEM NO.	CASE
4**	Docket No. 020413-SU - Initiation of show cause proceedings against Aloha Utilities, Inc. in Pasco County for failure to charge approved service availability charges, in violation of Order No. PSC-01-0326-FOF-SU and Section 367.091, Florida Statutes. (Deferred from the May 21, 2002 conference; revised recommendation filed.)

Critical Date(s): None

Commissioners Assigned: Full Commission
Prehearing Officer: Deason

Staff: GCL: Gervasi
ECR: Fletcher, Merchant, Willis

(All issues proposed agency action except Issues 2, 5, and 7.)

ISSUE 1: Should Aloha's proposed settlement agreement be approved?

RECOMMENDATION: No. Aloha's proposed settlement agreement should be rejected. The Commission should instead dispose of this matter as set forth in Issues 2 - 7 of this recommendation.

ISSUE 2: Should Aloha be ordered to show cause, in writing within 21 days, why it should not be fined for failure to charge its approved service availability charges and to timely file a revised tariff sheet reflecting those charges, in apparent violation of Order No. PSC-01-0326-FOF-SU and Section 367.091, Florida Statutes?

RECOMMENDATION: Yes. Aloha should be ordered to show cause, in writing within 21 days, why it should not be fined $1,000 for the apparent violation of Order No. PSC-01-0326-FOF-SU and Section 367.091, Florida Statutes. The order to show cause should incorporate the conditions stated in the analysis portion of staff's August 8, 2002 memorandum.

ISSUE 3: Should Aloha be authorized to backbill customers for the approved service availability charges that it should have collected for connections made between May 23, 2001 and April 16, 2002, and, if not, should any such backbilled amounts collected be refunded, with interest?

RECOMMENDATION: Aloha should not be authorized to backbill customers for the approved service availability charges that

Agenda for
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(Continued from previous page)

it should have collected for connections made between May 23, 2001 and April 16, 2002. Aloha should be required to refund any such backbilled amounts received and any increased service availability charges collected prior to April 16, 2002, calculated with interest in accordance with Rule 25-30.360, Florida Administrative Code. The amount of interest should be based on the 30-day commercial paper rate for the appropriate time period. The refund should be made within 30 days of the effective date of the final order in this docket and the utility should be required to file refund reports consistent with Rule 25-30.360, Florida Administrative Code. With respect to persons who prepaid the erroneous charge in order to reserve capacity, but who did not connect to Aloha's system prior to April 16, 2002, Aloha should charge its approved $1,650 service availability charge provided notice was received pursuant to Rule 25-30.475(2), Florida Administrative Code.

ISSUE 4: Should Aloha be required to impute on its books as though collected any amount of the CIAC that it should have collected between May 23, 2001 and April 16, 2002?

RECOMMENDATION: Yes. Aloha should be required to impute $157,341 of CIAC on its books as though collected.

ISSUE 5: Should the Limited Partners' Petition to Intervene be granted?

RECOMMENDATION: Yes. However, because the Limited Partner's substantial interests are only affected by the Commission's decision on Issues 3 and 6, intervention should be limited to those issues. This decision should be without prejudice to the Limited Partners to file a complaint regarding the other issues raised in their Petition which are unrelated to the issues addressed in this docket.

Agenda for
Commission Conference
August 20, 2002

ITEM NO.	CASE
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(Continued from previous page)

ISSUE 6: Should Aloha be required to file a replacement tariff sheet reflecting its approved service availability charges, to be stamped effective for connections made on or after April 16, 2002?

RECOMMENDATION: Yes. Aloha should be required to file a replacement tariff sheet within 10 days of the effective date of the order arising from this recommendation, reflecting its approved service availability charges. The tariff sheet should be stamped effective for connections made on or after April 16, 2002 and the affirmative relief sought by the Limited Partners, which is that the effective date of the revised service availability charge tariff should be on or after July 19, 2002, should be denied. Further, no developer or builder should be billed the approved service availability charges unless notice has been provided to the developer or builder, pursuant to Rule 25-30.475(2), Florida Administrative Code. In accordance with H. Miller & Sons, that notice must be received prior to connection and no later than the date of connection. Aloha should also be required to provide notice of the Commission's order arising from this recommendation to all developers to whom it has sent a backbilling letter and to any persons who have either requested service or inquired about service with the utility in the past **12 months. Aloha should submit the proposed notices for staff's administrative approval** within 10 days of the effective date of the order.

ISSUE 7: Should this docket be closed?

RECOMMENDATION: If the Commission approves staff's recommendation on Issues 1-6, no timely protests are filed to the proposed agency action issues, and Aloha responds to the show cause order by paying the required fine, **refunds** any backbilled amounts received calculated with interest in

Agenda for
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(Continued from previous page)

accordance with Rule 25-30.360, Florida Administrative Code, within 30 days of the effective date of the order, **files** refund reports consistent with Rule 25-30.360, **Florida** Administrative Code, files a replacement tariff sheet reflecting its approved service availability charges and provides the required notices within 10 days of the effective date of the order, this docket should be closed administratively. If Aloha fails to comply with the Commission's directives, this docket should remain open for further action. If Aloha responds to the show cause order and requests a hearing, or a protest is received to a proposed agency action issue by a substantially affected person within 21 days of the issuance date of the order, this docket should remain open for final disposition.

EDITORIAL

Aloha water isn't up to snuff — fix it

Since when is dark, smelly water considered quality?

That is the spin offered by Aloha Utilities after a state-commissioned report said the discolored water coming from taps in southwest Pasco is not substandard. Don't blame Aloha, blame customers' pipes.

The same report suggests multiple fixes that the utility said could cost several million dollars to implement.

"From our perspective, it gives some comfort to the customers, I hope," said Aloha's attorney, F. Marshall Deterding. "We provide quality water."

For years, customers have complained of strong odors, black water, stained laundry and water too putrid to bathe in. Hydrogen sulfide is pinpointed as the problem because it corrodes pipes, discolors the water and emits a smell akin to rotten eggs. That doesn't meet our definition of quality.

Deterding's commentary also highlights a significant problem in this ongoing dispute. Aloha's perspective downplays customers' concerns. Six years ago, 70 percent of the customers responding to a PSC mail-in survey reported unsatisfactory appearance, taste and smell, and two-thirds reporting discolored water characterized it as black or gray. Aloha's response? Since 11 percent didn't report discolored water, and 57 percent didn't mail back the survey at all, those who are complaining are in the minority.

The water quality issue extends beyond the tendency to consume bottled drinks. Welbilt Technology Center, lured to Pasco in 1998, testified before the PSC it couldn't recommend southwest Pasco for business relocations until Aloha improved its service. The company said hydrogen sulfide in the water damaged research equipment.

So, customers are unhappy, but they should be comforted, according to Aloha. Here's one thing customers should be comforted by: Deterding's promise "we'll do whatever the commission decides."

It might be a first. Aloha has appealed rate rulings, refund requirements, PSC-mandated audits of its books and penalties for failing to collect higher impact fees from developers.

The water quality report released Tuesday from Audrey Levine, associate professor at the University of South Florida's Department of Civil and Environmental Engineering, suggests Aloha can reduce hydrogen sulfide in its water via chemical treatments or membrane filters. The company warned of the potentially high costs, which brought an immediate rebuke.

"If anyone thinks the customers are going to pay for mistakes or irresponsibility of Aloha, they've got another thing coming," said Sen. Mike Fasano, R-New Port Richey, an Aloha customer and its most vocal critic.

Besides, how can anyone be comforted by Aloha's cost calculations, considering its history of: sweetheart dealing to benefit its majority stockholder, failing to collect $660,000 in impact fees over an 11-month period and a skewed salary structure for overpaid officers?

If Aloha wants its customers to be comforted, it should start seeking affordable remedies without foisting the entire cost onto the public.

Aloha Utilities appeals order to give back some $278,000

BY CARL ORTH
SUNCOAST NEWS
BUREAU CHIEF

SEVEN SPRINGS—Aloha Utilities filed an appeal Thursday seeking to reverse a January order from state regulators that it refund an additional $278,000 to customers.

Last month's Public Service Commission refund order was "downright bizarre," according to Marty Deterding, the Tallahassee-based attorney representing Aloha.

The investor-owned water and sewer utility has some 10,000 customers in the Seven Springs-Veterans Village area.

Aloha executives believed they had fully complied with the PSC final order, issued last summer, which included refunds totaling $142,000.

That first round of refunds began appearing in September as credits on Aloha customers' bills.

So, the January order for more refunds surprised Aloha officials, Deterding said. The PSC decision last month is "contrary to their final order and long-standing precedence," Deterding argues.

In its appeal, Aloha asked the PSC to transfer the case to the Florida Division of Administrative Hearings. An administrative law judge would hear the issues in that event.

"We're trying to get it heard quickly," Deterding said Friday about seeking the transfer. The PSC hearing schedule appears "very tight" at this time.

A West Pasco lawmaker slammed Aloha for taking its appeal of the PSC refund order to the Division of Administrative Hearings.

"This is an obvious attempt to sidestep the very body which ordered the refund in the first place," state Sen. Mike Fasano, R-New Port Richey, said Friday in a press release. Fasano is an Aloha customer and a longtime critic of the utility.

The Aloha appeal is the "latest thumb-of-the-nose at the customers," Fasano commented.

If the appeal fails, Aloha would have to give back $278,113, plus interest, to customers.

The refund money has been sitting in an escrow account set up to receive the proceeds of an interim rate increase. The PSC voted on April 2, 2002, to deny Aloha a permanent rate increase of more than 50 percent.

But the higher, interim rates continued while appeals dragged on until May 6, 2003. At that time, an appeals court agreed with the PSC that Aloha did not deserve a permanent rate hike.

Carl Orth can be reached at
corth@suncoastnews.com

PASCO TIMES

SOUTH
AN EDITION OF THE
St.Petersburg Times

WEDNESDAY ■ OCTOBER 6, 2004

Aloha ordered to give back rate increase

■ The Public Service Commission tells the water utility to give back $276,000 it collected under an interim rate increase.

By ALEX LEARY
Times Staff Writer

NEW PORT RICHEY — Aloha Utilities was ordered Tuesday to give back $276,000 it collected from customers under an interim rate increase granted three years ago.

It's the second time the company has had to issue refunds based on the rate increase. Aloha returned about $122,000 last year, contending it could keep the balance.

But the Public Service Commission on Tuesday ruled against the utility, which has been the subject of numerous customer complaints about the smell and appearance of its water.

"If money is taken from customers, they should return it," said Abe Kurian, an Aloha critic who lives in Seven Springs. "Aggravating customers by withholding their refund is not good customer service for any company. You don't need an MBA to know that."

The interim rate increase was approved by the PSC in November 2001 while Aloha petitioned for a 55 percent permanent increase. That effort was

Please see **ALOHA** Page 10

Aloha from Page 1

ultimately unsuccessful, leading to the April 2002 order to refund interim funds.

Only a portion — $122,000 — was given back to customers initially. Then state Sen. Mike Fasano and others got involved and the matter was again before the PSC, culminating with Tuesday's decision.

No new arguments were accepted at Tuesday's PSC meeting in Tallahassee. Aloha attorney F. Marhsall Deterding attended the hearing but was not allowed to address the commission, the utility said.

Aloha president Steve Watford maintained the refund decision was contrary to the original PSC order and an audit that concluded, he said, the company refunded proper amounts the first time.

Those credits amounted to about $7 per customer, officials said then. It was unclear how much the new refunds would be per customer. Aloha has about 15,000 customers in southwest Pasco.

Fasano, R-New Port Richey, said in a statement that he hoped Aloha would issue new refunds quickly "so that this whole matter can be put to rest."

A larger battle awaits, however. Hundreds of customers have signed petitions asking the PSC to delete them from Aloha's service area. The company, meanwhile, is working on a new treatment system to address water quality issues.

Hearings on both matters are set for early next year.

Alex Leary can be reached in west Pasco at 869-6247, or toll-free at 1-800-333-7505, ext. 6247. His e-mail address is leary@sptimes.com.

#83

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 020896-WS

In the Matter of:

PETITION BY CUSTOMERS OF ALOHA UTILITIES, INC. FOR DELETION OF PORTION OF TERRITORY IN SEVEN SPRINGS AREA IN PASCO COUNTY.
_____/

FILE COPY

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VOLUME 1

Pages 1 through 147

PROCEEDINGS:	NEW PORT RICHEY SERVICE HEARING
BEFORE:	COMMISSIONER J. TERRY DEASON COMMISSIONER RUDOLPH "RUDY" BRADLEY COMMISSIONER CHARLES M. DAVIDSON
DATE:	Thursday, April 8, 2004
TIME:	Commenced at 9:30 a.m
PLACE:	West Pasco Government Center County Commission Board Room (Suite 160) 7530 Little Road New Port Richey, Florida
REPORTED BY:	LINDA BOLES, RPR TRICIA DeMARTE, RPR Official FPSC Reporters

DOCUMENT NUMBER-DATE
04789 APR 22 04
FPSC-COMMISSION CLERK

om Anderson, Representative, District 45." Thank you.

MR. BURGESS: Thank you, Commissioner Deason. At his point I would ask Dr. Abraham Kurien to make his resentation. And also, again, I would like to make the omment that we are at this point going into a technical and cientific analysis. So as you listen to the testimony, please e aware of that and please take it in that light. **Thank you** ery much.

ABRAHAM KURIEN

as called as a witness on behalf of the Citizens of the State f Florida, and, having been duly sworn, testified as follows:

DIRECT STATEMENT

DR. KURIEN: This is Aquafina water.

Honorable Commissioners, my name is . Abraham Kurien. **I am a customer of Aloha Utilities and live** t 1822 Orchardgrove Avenue in the Seven Springs area. **I had** he privilege of addressing the Public Service Commission over two years ago during its 2002 January hearing. Then I made the suggestion for the creation of a Citizens Advisory Committee to solve the water quality issues because of my experience in Santa Fe, New Mexico, as a facilitator who helped to resolve tensions between parties pulled apart by adversarial positions. I had hoped then that we would get better water within a short period.

Today I appear before you with these hopes dashed

because of the lack of timely intervention on the part of regulatory agencies and the hesitation of Aloha to create a Citizens Advisory Committee and interact purposefully with them when the citizens made that initial offer. Even after the extremely delayed formation of the CAC there has been very little in the form of effective communication between Aloha and its customers. The one positive outcome during the last two years has been the technical review of the production and distribution of drinking water in the Seven Springs area sponsored by the Office of Public Counsel and its completion in a very delayed manner over the period of one year.

The context of that technical review needs to be stated clearly so that all of us are well informed about why the customers of a utility found themselves in the burdensome position of having to seek the help of the PSC and the Office of the Public Counsel to force upon the utility a technical review of its water processing method and facilities. It's natural to assume that water utilities will provide a competitive standard for the quality of drinking water about which they can be proud and concerning which the customers have no complaints. Yet 1,491 customers of Aloha, after varying periods of time during which they unsuccessfully tried to get the utility to deliver water that remains drinkable and can be used for other domestic purposes without anxiety, finally decided to serve notice on Aloha that if within 12 months of

July 15, 2002, the water quality did not improve significantly, they would have no alternative but to request the PSC to exercise its authority and jurisdiction to delete them from the service territory of Aloha and give them the opportunity to connect Pasco County water utility.

This PSC hearing has been announced as an opportunity for customers to respond to that technical review by Dr. Levine, as well as to consider other options that may lead to resolution of the matter of poor quality during the last ten years in this area. I'd like to start my presentation by summarizing the conclusions of the technical review and the analysis of raw and processed water into three simple statements with which I hope everyone will agree. I will talk about options this afternoon.

The three conclusions are: One, at Aloha Utilities during the years 1993 to 2003 there was inadequate monitoring of water parameters that could have provided for better process control of the currently used methodology.

Two, the sole use of chlorination, which is the method that is currently used, and the short-term recommendations that were made by Dr. Levine in Phase I report of the audit submitted in August 2003 are not able by themselves to reduce significantly the incidence of black water, and by implication rotten egg odor, within domestic plumbing because of certain limitations that are inherent in

the current method in its own context and detected during Phase II of the audit.

Three, therefore, one or more of the alternate upgraded methods would be necessary to reduce the incidence of black water, and such method or methods should be used after an appropriate investigation of the efficacy of the methods chosen through a pilot-scale program.

The data collected by Dr. Levine during her year-long technical review may seem extensive when compared to the almost nonexistent state of relevant data to review the adequacy of process control. Some data is better than no data, I suppose. If Aloha had offered nonhesitant cooperation, we would have had a much greater volume of data from which we could have drawn more robust conclusions. However, even from the small amount of data that we now have, we can draw some relevant conclusions, as Dr. Levine has done. In addition to the three major conclusions that I have indicated above, the data also reveals certain inadequacies of processing method and facilities, which Dr. Levine alludes to but which she has not addressed in her executive summaries, recommendations and conclusions.

Dr. Levine was unable to connect her recommendations of upgrades for improvement for water quality with all the data she collected because within the parameters of her audit she did not undertake extensive investigation of the black water

roduced in the domestic plumbing to define conclusively the auses for the formation of black water and rotten egg smell in ome faucets.

However, an analysis of the data that Dr. Levine has athered makes it possible to expand some observations that had een previously made by nearby utilities, study groups rganized by the PSC such as the Interagency Copper Corrosion tudy Group and investigations conducted by the Florida epartment of Environmental Protection. These observations had uggested as early as 1991 that the sole use of chlorination or processing underground water that is deficient in dissolved xygen may have an appropriate -- inappropriate pH and has a igh concentration of hydrogen sulfide will produce elemental ulfur in processed water and may lead to the phenomenon of lack water.

By issuing new guidelines for the control of copper orrosion and black water in August of 2003, FDEP has ecognized this critical role for elemental sulfur in copper orrosion and black water. The new guidelines reads, "Direct hlorination shall not be used to remove," that is to oxidize," .3 milligrams per liter or more of total sulfide unless the elemental sulfur formed during chlorination is removed."

I like to review the data obtained by Dr. Levine to see what information the recent audit gives us that correlates with this conclusion of the Department of Environmental

Protection. First of all, I want to draw your attention to the fact that all 15 samples of raw water collected by Dr. Levine during Phase II of her audit from the eight wells of Aloha had hydrogen sulfide concentrations greater than 0.3 milligrams per liter, the concentration mentioned as a threshold for removal of elemental sulfur in the new FDEP guidelines. One of the two hydrogen sulfide levels from Well 9 was as high as 3.95, ten times the threshold level. Between March and July of 2001 all 20 samples of water that were tested for hydrogen sulfide in Well 9 had levels greater than 3.5 milligrams per liter as indicated in Phase I report, with the highest level noted at 5.71 milligrams per liter, which is more than 20 times the threshold level. Thus, 21 out of the 22 readings of hydrogen sulfide we have from Well 9 are higher than 3.5 milligrams per liter. In view of the new guideline imposed by FDEP, it is important to know whether elemental sulfur was produced in the treated water on these occasions.

Unfortunately, there is no standardized method available for measuring the level of elemental sulfur produced in treated water. But Dr. Levine does acknowledge that elemental sulfur is produced during Aloha's method of water processing. On what observation or knowledge does she then base that fact? It is substantiated by the well-known scientific fact that when chlorine is used to oxidize hydrogen sulfide in water, the reaction is understood as a two-stage

reaction which first forms elemental sulfur depending on the amount of chlorine available as well as other important considerations such as pH, temperature of the water, other oxidizable materials in raw water and the amount of dissolved oxygen present. Subsequently, the sulfur initially formed is converted to sulfate depending on the same condition. **This has** been known since 1952, over 50 years ago. Let me repeat that. This has been known since 1952, over 50 years ago. Dr. Levine has given detailed information about this in Phase I report on Page 18 and in Phase II report on Page 16, including chemical equations, which I'm sure you will not want me to go into at this time.

One way to determine to what extent elemental sulfur and sulfate have formed during the process at any well is to determine the chlorine demand of hydrogen sulfide alone, which is the amount of chlorine that reacted with hydrogen sulfide present in raw water at that well at that specific sampling time. When the calculated number for chlorine demand is 2.08, it shows that hydrogen sulfide was converted only as far as elemental sulfur. When the chlorine demand number is 8.33. it confirms that all the hydrogen sulfide was converted to sulfate. Intermediate values between 2.08 and 8.33 show that both sulfur and sulfate were produced. The closer the value is to 2.08, more elemental sulfur was produced, and the closer the value is to 8.33, more sulfate was produced.

Dr. Levine shows in Figure 15 on Page 21 of the Phase II of her report that the values for the 15 samples of raw water fell between 2.31 and 7.83, showing a significant range of values for the relative production of elemental sulfur and sulfate in these eight wells of Aloha. Statistical analysis showed that the values would cluster along the statistical mean of 5.5 with a high correlation coefficient, which means that it is a valid conclusion. Converted to percentages, this means that on a statistical average, in Aloha wells 45 percent of hydrogen sulfide was converted to elemental sulfur and only 55 percent of hydrogen sulfide present in raw water was converted to sulfate. This observation is in agreement with other studies done on underground water deficient in oxygen, according to Dr. Levine.

Dr. Levine has also provided qualitative evidence to show that this is not merely a theoretical construct, but the presence of elemental sulfur can be demonstrated in processed water by a scanning electron microscope. While it is true that the distributed water that reaches the domestic meter is generally clean and clear as claimed by Aloha in its information handouts, it is only so to the naked human eye. Aided by the technological advances such as the scanning electron microscope it is possible to document that not only is elemental sulfur present in processed water, but that it forms a series of complexes with metals present in the distributed

water and with phosphorus which is added as a corrosion inhibitor in the form of a blended orthopolyphosphate. When such complexes with sulfur, phosphorus and other minerals are formed in the water, it may cause discoloration of the processed water. When the very same water meets copper pipes, black water is formed because copper sulfide, which is a black compound, imparts a black color to these insoluble complexes. Documented evidence from Dr. Levine's study shows that the color of these sulfur phosphorus metal complexes could be golden brown before it enters the domestic circulation, but that it changes to black or gray when it enters the domestic plumbing made of copper pipes or CPVC pipes with copper containing fixtures.

Thus the most important scientific conclusion from Dr. Levine's technical review in its relation to the formation of black water in the Seven Springs area is that the processed water from Aloha wells will almost always contain a combination of elemental sulfur and sulfate which can lead to the formation of black water.

Is this a new revelation? Absolutely not. Back in 1991 when Pinellas County was faced with instances of black water, it undertook a research of study to explore the possible reasons for black water. This study, which was a master's thesis submitted by Troy Lyn to the University of Central Florida, was perhaps one of the first studies to report an

association between elemental sulfur and black water. The most important conclusion of that study was chlorination should not be used to remove sulfides in potable water treatment, unless followed by an effective turbidity removal process. **Remember,** that was in 1991. This conclusion was reported at the American Water Works Association's meeting in Miami in 1993, the year in which high levels of copper were first detected in Aloha's distribution water, even before customers had started complaining of the black water phenomenon. **This fact and the** implications of the observation in relation to black water were very well known to FDEP. In fact, one of its staff members, Mike LeRoy, sent a copy of this article to Mr. John Starling of the PSC to familiarize the PSC also with this important finding.

In the hearing that the Public Service Commission held in New Port Richey in 1996 to discuss the complaints of residents from Wyndtree and Chelsea subdivisions, it was reported that the black sediment found in domestic plumbing was copper sulfide. Mr. Porter, the consulting engineer of Aloha, while describing the cause of black water during that hearing, did admit that the processing of raw water with the sole use of chlorine at Aloha's wells did produce elemental sulfur along with sulfate. However, instead of associating black water formation with the production of elemental sulfur as others had done, he proposed a theory that it was exclusively due to the

conversion of sulfate present in water into hydrogen sulfide by sulfur-reducing bacteria, and that such a reaction occurred only in the customers' domestic plumbing.

That theory was challenged in 1997 by a Pasco County Utility official whom Representative Mike Fasano had contacted for information about the incidence of black water in Pasco County. **The Pasco utility official pointed out that elemental** sulfur was a primary ingredient in the production of black water and that pH adjustment was essential to avoid black water formation. Mr. Porter, on the other hand, now claimed that elemental sulfur was not produced in Aloha's processing method, contrary to his own admission in 1996 and all scientific knowledge at that time about the limitations of the sole use of chlorination as a processing method. His eloquence was so convincing that during the next three years the Public Service Commission was repeatedly claiming, "Currently Aloha has converted," that is oxidizing, "all the sulfide present in water to sulfate by chlorination," an impossible task. This co-option by Mr. Porter and Aloha of the regulatory agencies was to have serious consequences because the regulatory agencies did not recognize in 1997 that institution of a new method for reducing black water phenomenon in the domestic plumbing was an urgent necessity. **The customers were confused** by the claim of Aloha on the one hand that it provides clean, clear and odor-free water, and on the other hand by the

xpression of its willingness to install new methods that would e accompanied by an increase in water bills of 398 percent. ne customers refused to accept the offer to install packed ower aeration as a method, especially since Aloha insisted hat even this expensive new method will not improve water uality.

Now we are a little closer to the truth. Aloha knew ll along or should have known all along that elemental sulfur as present in the water it was distributing and that it would e associated with black water formation. The only way to deal ith this truth from Aloha's point of view seems to have been o under report the frequency of black water and use a partial ruth to cover up the whole truth. Aloha used the fact that he only location where copper sulfide formed was the domestic lumbing. That is indeed correct, since copper is necessary to orm copper sulfide. And the only location in which copper was resent in Aloha's distribution system was the domestic lumbing. That would provide Aloha with the necessary isclaimer for not processing the water to the same standards as other neighboring utilities were attempting to do.

The Florida state law that maintained that the tility was responsible for the characteristics of the water nly as far as the domestic meter came to the rescue of Aloha. here were also other strands of legalism easily available to uttress Aloha's lack of adequate monitoring. There is no law

in Florida which requires that Aloha should test the level of hydrogen sulfide in its raw water or should determine if there was elemental sulfur in the distributed water. All the secondary standards for water quality were based on the limited capacity of human vision and human sense of smell. **So Aloha** could claim quite easily that it met all legal standards without paying any attention to scientific truths.

Neither Aloha nor the regulatory agencies thought it important to ask the question why all the neighborhood utilities were upgrading their methods to aeration or as to why those utilities did not use chlorination as the sole method, if that method was enough to provide clean, clear and safe water, as Aloha continues to claim even to this day.

Government utilities obviously cannot be negligent because they are responsible to citizens. Aloha did not follow the leads of governmental utilities because as a monopoly its customer base was guaranteed and no regulatory agency was auditing the technical adequacy of its method or contesting its claim of clean, clear and safe water. In fact, Aloha was allowed to self-regulate by the FDEP. Nobody except the customers and their elected representative Representative Fasano were demanding an independent investigation and improvement in quality of delivered water. Aloha attempted to neutralize them by the accusation that they were politicizing water issues. Aloha had paralyzed the FDEP by the claim that

t met all federal and state standards and effectively revented remedial action by the PSC by legal challenges of its ecision. Law had kidnapped the fundamental rights of citizens o drinkable water.

Now Aloha realizes that it cannot do that anymore, ior can the FDEP and PSC claim that they do not have the uthority, jurisdiction or indeed the responsibility to ensure hat Aloha customers deserve better quality water and a ompetitive product. The judicial system, in the form of the istrict court of appeals, has upheld the jurisdiction and esponsibility of the PSC to the captive customers of Aloha. he well-informed customers have also pointed out to the PSC hat its legislative mandate is to interpret the Florida tatutes of Chapter 367 liberally to protect public health, afety and welfare. Further, the customers and the Office of ublic Counsel have taken on the burden of proving that the ater Aloha distributes contains elemental sulfur that is ssociated with the corrosion of pipes, and that Aloha may have nown this truth all along. Mr. Porter has vehemently denied here is any elemental sulfur in Aloha's distributed water ecause he had to, because he knew that the main problems ssociated with converting hydrogen sulfide to elemental sulfur re related to finished water turbidity increases and the egative effects that increased water turbidity produces like ower disinfection efficiency, increased chance for bacterial

contamination and growths in the distribution system, et cetera, which have been the case for the last ten years, if not more.

Dr. Levine has now established that elemental sulfur is formed in all of Aloha's wells and that elemental sulfur can be converted to hydrogen sulfide in the distribution system and the domestic plumbing just as well from sulfate. She has specifically mentioned in the executive summary of Phase II report an instance during the sampling procedures where hydrogen sulfide reformation was detected in the distribution system. We now know that contrary to the speculations of the consulting engineer of Aloha, the frequency of complaints about black water bears no relation, no correlation with sulfate levels in delivered water. Further, the customers have provided evidence to the PSC that FDEP had information that should have alerted it to the high probability that elemental sulfur would be produced in significant amounts at Well 9 as early as May of 1994, even before that well was brought online. We have provided PSC with all this evidence. We have shown that Chapter 367 of the Florida Statutes had given the PSC the authority and regulatory responsibility to audit Aloha's facilities even as early as 1996, if it had only understood at that time the urgent necessity to do so.

Dr. Levine in her recommendations explains that aeration or additional oxidants are very essential for reducing

the incidence of black water because of their ability to suppress the activity of anaerobic sulfur-reducing bacteria. That means bacteria that does not require oxygen for survival and which are very sensitive to the presence of additional oxygen in water. She even suggests that pH adjustments of processed water will be beneficial. Even before the scientific support that Dr. Levine's reports have provided for the need for upgrades in water treatment, the option of pH correction was recommended by PSC staff in 1997, but set aside by Aloha.

Much black water has flowed through the domestic pipes of Aloha's customers since they started complaining about the poor quality of water, but at least now we understand that inaccurate and incomplete science has prevented expedient solutions to the black water and foul odor that the customers have been reporting for almost ten years. What the technical review of Dr. Levine shows is that better quality water could have been delivered in the Aloha water system during the last few years if accurate science, instead of legalism, had been allowed to perform its appropriate role. Now that we understand what has been happening in the Seven Springs water system for over a decade, through the application of scientific research methods and the analysis of chlorine demand in each of the wells, it is time to move on to the provision of better quality water that can reduce the incidence of black water and foul odor in the homes of the long-suffering customers in this

area. Thank you.

COMMISSIONER BRADLEY: Yeah. I would like to ask some questions.

COMMISSIONER DEASON: Commissioner Bradley has a question for the doctor.

COMMISSIONER BRADLEY: Yes. I just want to ask one question just to make sure that I clearly understood what -- your statement.

On Page 9 of your report as it relates to Well 9, do I clearly understand you to state that, your statement that even as early as May of 1994, even before the well was brought online there was evidence that the water was going to be unacceptable?

DR. KURIEN: Yes. In fact, FDEP files shows that the measured amount of hydrogen sulfide in Well 9 was 4.3 milligrams percent per liter. There was also a report along with that which says that whoever smelled that water could not smell hydrogen sulfide. At that time only the smell was necessary; the absolute value need not be reported. So I presume that the smell was reported to produce evidence to show that there was no hydrogen sulfide and, therefore, the well was brought online.

I recently went down to the FDEP office, and in the files of Wells 8 and 9 there's a report which shows the absolute value, and that value is 40 times the minimum required

for a person to smell hydrogen sulfide. So I presume the person who smelled must have had sinus problems that day.

COMMISSIONER BRADLEY: One other question. And I'm -- this is scientific to me, and I'm just trying to get to understand, because I've been studying this somewhat, and I'm just trying to get to understand some of the scientific components of it.

Did you also state that, that the chlorination increases the, the incidence of black water?

DR. KURIEN: It's not chlorination that increases it. If there is not adequate amounts of chlorine, sulfur forms.

COMMISSIONER BRADLEY: Okay.

DR. KURIEN: And both sulfur and sulfate can be rewarded (phonetic) back to hydrogen sulfide, which is where you start from. You're taking hydrogen sulfide, adding chlorine. It goes to the first stage of producing sulfur, and then depending upon the amount of oxygen, it goes further to sulfate. So if there is not enough chlorine which provides the oxygen, the reaction will stop partially at the level of sulfur. Now sulfur unfortunately appears in colloidal form and sticks to pipes much more easily than sulfate, which is a dissolved substance. So if you have sulfur in water, it's more likely to cause black water, and that's why the FDEP has now introduced a new rule or a guideline, as they call it, which says that if you have more than 0.3 milligrams of hydrogen

sulfide in the raw water and if you use only chlorine, then you must remove the elemental sulfur before you allow that water to be distributed. And we had in Well 9 levels as high as 20 times the 0.3 milligram threshold which have been allowed to go into the distribution system without any filtration. And the area that is supplied by Well 9, as the PSC staff have noted before, is the area where the most intense form of black water and the most frequent form of black water becomes manifest.

COMMISSIONER BRADLEY: One other question and I'll be finished. I'm from St. Petersburg in Pinellas County, and I don't -- I won't get into the discussion about Pinellas County and its lack of drinking water and its interaction with the surrounding counties. But since a kid I've observed in Pinellas County at a fountain down there, downtown, and the fountain always put out what we called sulfur water. Is the water that we are discussing here in Pasco County the same as sulfur water? That's what the local residents, that's what we called it. It smells like --

DR. KURIEN: Hydrogen sulfide.

COMMISSIONER BRADLEY: Rotten eggs.

DR. KURIEN: Yes. Rotten eggs.

COMMISSIONER BRADLEY: It tastes like -- it has a different taste.

DR. KURIEN: Yes. Yes. That's precisely -- and that is because hydrogen sulfide is being re-formed in that water or

. t has not been adequately removed. I don't know which, which articular faucet you're talking about. But in the house is here there is water running all the time -- in fact, even in y own house where I run water every day from every faucet ossible to make sure that we don't have a problem. But then n and off we'll have problems, and it is nothing, I presume, o do with what I do in the house. The amount of hydrogen ulfide or elemental sulfur that is in the water and how it is andled at the central facility has a lot to do with it because e have instituted all kind of filters. Some of our neighbors ave filters that cost as much as $3,000. And it's very interesting, the best filtration device is one that contains copper granules. They add copper granules to this conditioner so that the copper removes the hydrogen sulfide before it gets into the plumbing of the household. So, yeah, using copper as a sacrificial system to remove hydrogen sulfide. So we'll soon ave no copper pipes left because they will all get dissolved away.

COMMISSIONER BRADLEY: Okay. Thank you.

COMMISSIONER DEASON: Thank you, Doctor.

DR. KURIEN: Okay.

COMMISSIONER DEASON: Mr. Burgess.

MR. BURGESS: Commissioner, the next witness I have is Dr. John Gaul. And, again, this is, this is the second witness we have that has a technical background and will

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BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 020896-WS

FILE COPY

In the Matter of

PETITION BY CUSTOMERS OF ALOHA UTILITIES, INC. FOR DELETION OF PORTION OF TERRITORY IN SEVEN SPRINGS AREA IN PASCO COUNTY.

_____/

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VOLUME 2

Pages 148 through 236

PROCEEDINGS	NEW PORT RICHEY SERVICE HEARING
BEFORE:	COMMISSIONER J. TERRY DEASON COMMISSIONER RUDOLPH "RUDY" BRADLEY COMMISSIONER CHARLES M. DAVIDSON
DATE:	Thursday, April 8, 2004
TIME:	Commenced at 4:00 p.m. Concluded at 6:10 p.m.
PLACE	West Pasco Government Center County Commission Board Room (Suite 160) 7530 Little Road New Port Richey, Florida
REPORTED BY:	LINDA BOLES, RPR TRICIA DeMARTE, RPR Official FPSC Reporters
APPEARANCES:	(As heretofore noted.)

DOCUMENT NUMBER-DATE
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FPSC-COMMISSION CLERK

f Florida, and, having been duly sworn, testified as follows:

DIRECT STATEMENT

MR. LILES: Hello, gentlemen. My name is David les. I'm sorry I look like this. I just came from work. I have a hard time getting around after work.

But I've been reading about this for a while. I'm in onstruction and I do stucco, and I actually worked on the irst houses in Wyndtree before they even put the streets in or Marc Rutenberg homes. And I've been hearing all about the ipes in the house causing the problem. Well, we stuccoed the ouses before the pipes were even hooked to the houses and the ater was black. And they didn't even have meters on the lines hen we used them because, as I said, no streets were in or nything yet. **And we had to go down the street to get our** rinking water because, I mean, the water was that bad and it asn't even hooked up.

So I don't -- all I can say is that I know for a fact hat it's nothing in the houses that's causing the problem. Excuse me. And Wyndtree was the first subdivision in that whole area that was -- the houses were built. And that's all I ave to say.

MR. BURGESS: Commissioner, I'd ask Abraham Kurien to estify. Now Dr. Kurien testified at the earlier hearing that we had. He has -- this is additional testimony to that. He has a written version that I would ask be entered into the

record as though it were read. And then Dr. Kurien was going to present orally a condensed version, if that meets with the approval of the Commission.

COMMISSIONER DEASON: Mr. Deterding, did Mr. Burgess discuss this procedure with you?

MR. DETERDING: He mentioned it to me earlier today. Yes, sir.

COMMISSIONER DEASON: Okay.

DR. KURIEN: Honorable Commissioners --

COMMISSIONER DEASON: I just want to make sure, a opy of this has been provided to the court reporter; correct? ery well. And, Doctor, you're going to summarize this here, ut you would like to have this version entered into the ecord; correct?

DR. KURIEN: That's correct.

COMMISSIONER DEASON: Okay. We'll enter that into he record, and you may summarize.

THE ONLY LOGICAL OPTION THE CUSTOMERS HAVE

Honorable Commissioners,

Now that you have heard from Dr Gaul and myself about our reactions to Dr Levine's Technical Review of Aloha's water processing methods and facilities and the hydrogen peroxide option that Aloha is considering at the present time as the most appropriate one for improvement of water quality, I would request you to consider the context in which the customers see this offer from Aloha. **The petitioners after submitting their petition in July 2002 had hopes that Aloha would consider the need for water quality improvement as urgent.**[1] The customers, in spite of suffering the consequences of black water and foul smell in their homes gave Aloha and the regulatory agencies another 12 months in which to come up with some effective solutions to the customers' problems. Having been met with a lackadaisical approach to the issue by everyone concerned and by yet another legalistic claim that no further moves towards resolution of the problem could be attempted while the matter was in the District Court of Appeals, the customers felt that it was their burden to consider alternate options that are available for them. Aloha squandered its opportunity to meet with its customers and the regulatory agencies did not seem to consider it urgent to find out the scientific causes for the problems so that the issue can be addressed effectively once an appellate decision would be made. Thereby another 9 months have been spent in procrastination of action. Now at the last moment, there is an attempt to precipitate a sense of urgency that seemed to play no role at all in Aloha's deliberations before! **It is now almost 21 months since the customers submitted their petition and there has been no improvement of any sort in water quality. Even the very easily instituted methods suggested by Dr Levine in her Phase I report have not been put into effect.**

Therefore the petitioners are coming to this hearing with serious reservations about the good faith of the utility as well as the determination of the regulatory agencies whose responsibility it was to ensure that a competitive product was made available to

the captive customers of this monopoly utility long before 2004, ten years after the initial approach to the PSC for resolution, as Commissioner Deason will perhaps recall.[2] However, that has not prevented the customers from objectively considering all the options that may be theoretically available to them at this time. In their deliberations the customers have used four basic principles in the evaluation of their options.

They are:

1. That any new method adopted shall have the ability to significantly reduce the incidence of black water and rotten-egg odor in the water that comes out of domestic faucets:

2. That any new method adopted and the financial expenditures necessary to have it installed and maintained shall not result in an unreasonable increase in water costs above what is charged by neighboring utilities:

3. That the Utility that takes responsibility for providing improved quality of water at reasonably comparable costs shall also publicly undertake to be transparent about its processing methodology and shall resolve any and all technical problems that arise in a scientific manner rather than by appeal to legal standards:

4. That the Utility shall document that it has contracted sources of water to maintain an adequate supply of drinking water for the Seven Springs Area for at least ten years into the future.

After careful evaluation, the customers have chosen **one** as the alternative they want to be granted as the most suitable for them taking into consideration the events of the past and the possibilities for the foreseeable future.

The options the customers have considered can be divided into two different groups depending on where the distributed water will be obtained:

1. From **Raw water processed by Aloha Utilities, or**
2. From **Processed water obtained from Pasco County Water Utility and its suppliers.**

We have presented the details of these options and their implications, as we understand them to the PSC,[3] recognizing that we do not have all the information necessary for being totally specific about the relative costs because the capital expenditures involved are unknown to us.

The customers want to make special emphasis on the cost of these two categories of options. If the Seven Springs Area customers must stay with Aloha Utility, it appears to us that it would result in their paying much greater costs per 1000 gallons of water because the two methods for producing a 'competitive product' for which complete cost estimates are available from Aloha are prohibitive. It was estimated in 1997 that packed tower aeration would involve a capital cost of 10 million dollars. Inflation has increased that cost from 10 to 17 million dollars. Over 20-30 million dollars would be necessary if reverse osmosis is used, resulting in an even greater increase in water bills. Both of these methods will require a minimum of 3 years for installation. Such large financial investments as Aloha has indicated to process the relatively small amount of water for which Aloha has a Water Utilization Permit (WUP) will result in an enormous increase in unit cost of water for Aloha customers. **Aloha had calculated in 1997 that this would result in a 398% increase in water bills.**[4] The customer base of Aloha is too small for such a large financial burden to be placed on this community. Further, Aloha's water source is extremely limited and its WUP is only for 2.04 million gallons a day (MGD) and it is already pumping over 3.00MGD resulting in violation of SWFWMD permits by 50%.[5] Considering that Aloha's own estimate shows that it would require close to 6.0MGD per day by 2013[6] and it has no other foreseeable new water source, it seems very likely that the only way Aloha can obtain enough water to service the area is to **buy water in bulk from Pasco County at a rate much higher than its retail rate.** One would expect Aloha to charge approximately another 25%[7] for the costs of reprocessing and blending that water with the supply from its own wells, for the profit

margin it seeks and for business costs associated with this transaction. Essentially that means Aloha would become a pass through utility with Pasco County supplying two-thirds of its water demands and that the cost of such an arrangement, while it is of benefit to the Corporation would result in significant additional costs to the consumer. **The customers cannot and do not find any justification for such a middleman monopoly utility.** Additional infrastructure costs will become necessary to provide large enough connection to Aloha's network from Pasco County water mains and this also will have to be met by customers through rate increases. Even the most recent 'Conceptual Capital Costs and Incremental Annual O&M Costs" for Hydrogen Peroxide oxidation included in Schedule 2 and 3 in Aloha's recent submission to the PSC,[8] when combined with the unreported but additional costs of buying water at bulk rates from Pasco and the yet undetermined costs of pilot project, and other inevitable costs of instituting a new method gives little hope to the customers that water costs will be competitive.

On the other hand, it seems to us that the cost per 1000 gallons of water will be less expensive to the customers if Pasco County Utility is the **direct provider** for our drinking water. While we recognize capital costs are involved in a direct connection to Pasco, given the proximity of Pasco County Water Utilities supply lines to the Seven Springs area distribution network, it should not involve exorbitant costs to connect the petitioners to that water supply. These infrastructure costs are the same that Aloha would need to meet if Pasco County Utility becomes its major supplier. If such costs are amortized over a 20-year period as has been done on occasions where the county has taken over service areas from other private utilities, these additional costs can be very reasonable when applied as a surcharge over a period of 20 years rather than as a lump sum upfront cost, since the County Utility does not need a 10-12% profit margin that Aloha has been granted.

There are other obvious advantages also. Pasco County through its supplier, the Tampa Bay Water can provide us with water that meets a performance standard[9] that is much higher than the legal standard that Aloha has accepted as its norm and which does not take into consideration the variations in local water chemistry. Tampa Bay Water

provides aerated water and therefore meets one of the recommendations Dr Levine had indicated as a possible solution for black water in her Reports.[10] Pasco County Utility, in as much as it is a governmental utility, provides opportunity for customers to have direct input into its management especially through representative commissioners, who are more sensitive to citizen needs than Aloha as a private utility can be. Lastly, Pasco County through Tampa Bay Water has access to larger sources of water supply that will be guaranteed into the foreseeable future. It also appears that the infrastructure necessary for adequate connections between Pasco County Water lines and Seven Springs Area network can be provided much sooner, within a 12-month period.

Of even greater concern to the customers is the unpleasantness of the experience that they will have in the future based on Aloha's attitude to customer service and the treatment it has meted out to its customer base in the past. The customers have no desire to repeat into the future the experiences of the last 10 years. A significant number of customers would have abandoned Aloha for another provider as shown by the petitions submitted to the PSC except for the fact that the citizens have not had such an option because Aloha is a **monopoly utility**. We are providing the PSC with a list for the reasons of our unease in this regard.[11] We like to emphasize **four** areas of our concern.

First, the petitioners are extremely concerned about the way Aloha has informed the public and regulatory agencies about water chemistry and has inappropriately claimed adequacy for its current methodology and facilities in spite of evidence to the contrary, as has been explained in great detail by Dr John Gaul, and myself. Dr Levine's audit has also indicated that the present method and the facilities that Aloha currently has in place, did not possess the ability to provide processed water that has the stability not to undergo deterioration within the domestic plumbing within a short period after delivery. Hence her recommendation for upgrades to water processing methods. The technical staff of Aloha did not recognize this situation and take corrective steps earlier, but studiously avoided drawing attention to the limitations of the method and its facilities that are obvious from Dr Levine's Phase II report.[12] Since Aloha was allowed to "**self-regulate**" by the FDEP,[13] it has become the burden of customers to point out this matter to the PSC

and indicate how this scientific oversight or incompetence might be the real reason for the intensity and high frequency of black water and rotten-egg smell phenomena within certain areas of Seven Springs. **The unwillingness of Aloha to face the reality of scientific facts is of grave concern to the customers.** As Dr Gaul pointed out this does not forebode well for the future especially with a much more complicated and untried system of water processing that Aloha is now considering.

Secondly, the customers want the PSC to note that Aloha has downplayed the incidence of water quality issues by basing its statistics on the number of persons who have made individual presentations at PSC hearings rather than use the data obtained from the survey done in 1998.[14] Even accepting Aloha's own interpretation of the data (which may not be the usual way of evaluating data from surveys of this type), the incidence of consumer reports of unsatisfactory secondary water characteristics was close to 30% and not the less than 1/10 of one percent as reported by Aloha attorneys.[15] **This tendency to avoid the truth to protect its own interest at the risk of the customers' suffering does not serve as a good recommendation for Aloha to continue as our water provider.** We also have grave concerns about Aloha's record keeping and reporting activities.

Thirdly, the extremely legalistic attitude of Aloha in its dealing with its customers, especially since they have to bear the burden of legal costs through rate increases, indicates to the customers that a great deal of the financial resources of the customers is being wasted in unproductive litigation instead of improving the infrastructure of the processing plants. The primitive manual methods used by Aloha to monitor water parameters instead of providing updated automatic methods that could have provided better process control [16]towards optimum stability of water is difficult to excuse, especially after its service connections increased enormously since 1993. Its public expression of the desire[17] in January 2002 to create a Citizens' Advisory Committee to facilitate 'more expedient and compatible solutions' and the subsequent legal attempts to prevent the formation of such an entity to find scientific solutions to the problems faced by customers displays a cynicism that is also not acceptable. Aloha's

unwillingness to submit to regulatory supervision is exhibited by its appeal of the April 2002 Orders of the Public Service Commission to the District Court of Appeals.[18] Aloha's accusation that the PSC was trying to "punish" the Corporation when it tried to help the customers get better quality water is appalling. The customers consider Aloha's oft-repeated accusation and propaganda that the citizens' have "politicized" the issue of water quality for some other latent agenda,[19] a hostile and insulting attitude towards its customers. Aloha's attempt to prevent customers from getting a PSC hearing, while appealing in courts every decision of the PSC to help customers, is unforgivable. **These examples of extreme legal maneuvering do not appear to the customers to be a good recommendation for Aloha to continue as a water utility.**

Lastly, Aloha's attempt to view the customers as a cash cow is extremely distressing to the customers. As the PSC knows only too well, Aloha made an effort to collect **$659,000** from its present customers in 2002,[20] which it had absolutely no right even to consider as a legitimate approach, to offset its financial losses created by financial management inefficiency. This Corporate ethical lapse is extremely galling to the customers. Except for customer intervention, we might have been burdened with at least a significant portion of it! At this very moment, Aloha is trying extremely inappropriate legal maneuvers not to return to its customers escrowed funds of over **$275,000** authorized as interim rate increases but subsequently denied.[21] Not only the petitioners, but also all customers of Aloha must find this verges on corporate greed, especially in view of the prolonged litigation involved.

Such being the anxiety that we have about the financial costs to the customers if they are forced to remain with Aloha Utility and the even more serious concerns about Aloha's attitude towards its customers, it must come as no surprise to the PSC and even to Aloha itself that the petitioners after close to a decade of unpleasant experiences now seek **deletion of territory as the only recourse** that they have to improve their customer status and release themselves from captivity. **This preferred option of the petitioners to be connected as retail customers of Pasco County Water Utility will also provide them with water at a lower cost than Aloha can offer, assurance of continued water**

supply, a more friendly and proactive customer service and improved water quality within a much shorter interval of time from now. When Aloha had the chance to create a win-win situation for itself and the customers soon after the PSC hearing in January 2002, it deliberately rejected that opportunity, because it wanted to protect its interests at great risk to the customers. That is an indication to the petitioners that the corporate culture of Aloha is dominated by legalism and total disregard for its customers. **The customers are not masochistic enough to want to continue this relationship into the future. That the customers want their water provider to have a more customer oriented corporate culture is an extremely important point that we want the PSC to appreciate.**

Now that I have presented these well documented reasons for our freedom from the statutory imprisonment that we have been under for many years, we want the Commissioners, who have been given the police powers of the State of Florida to "***protect public health, safety and welfare***", to consider very carefully whether Aloha Utilities now has the credentials to be a drinking water provider for the citizens of Seven Springs or whether the PSC should grant the citizens the remedy that they are seeking of deletion of territory. **In the past the laws of this State have been used to protect the interests of a private corporation and to retain its monopoly status in spite of it not delivering to the customers a 'competitive product'. To continue to allow Aloha to be in the business of being a water utility in the context of what we have said here and documented extensively would be criminal injustice to the petitioners.**

The Public Service Commission in the year 2000 exercised its authority and jurisdiction by Order No PSC 00-0581-FOF-WS to extend the territory of Aloha under an administrative finding that it was in the 'public interest' to do so. In that particular instance Aloha had already violated Florida Statutes 367.045 (2) by extending its service outside the area described in its original certificate of authorization for a period of nine years without notifying the PSC. That PSC Order is a precedent setting event in which the PSC considered it appropriate to use its authority and jurisdiction for the furtherance of 'public welfare'. I would like to

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suggest to the Commission that the case that the petitioners are making today for deletion is also very much in the 'public interest' and for the welfare of those who have suffered emotionally, physically and financially because of Aloha's unwillingness to attend to its customers' needs with the same vigor that it has approached its interest as a private enterprise.

Therefore, we request your deliberate and careful consideration of the choice that WE, the people have presented to you. We know that it is within your authority to grant our request. Whether you will do so as an urgent matter of fairness and justice to whom such has been denied during the last decade remains a task that you must undertake as you listen to the customers and petitioners who will make their presentations to you today.

Thank you.

V. Abraham Kurien, M.D.

REFERENCES

1. Customer Petition, July 15, 2002, PSC Docket No 0208976

2. Acknowledgement by the PSC Chairman Terry Deason, dated June 23, 1993 of a copy of letter from Mr. Ray Flanders to Aloha Utilities

3. OPTIONS THAT CUSTOMERS MAY HAVE: A THEORETICAL ANALYSIS OF TIME FRAME, COST IMPLICATIONS, WATER QUALITY AND MANAGEMENT EFFECTIVE NESS, submitted to the PSC through OPC.

4. Attachment 4 to the PSC Memorandum dated Oct.23, 1997: Docket No 960545-WS

5. Reverse Osmosis Feasibility Study, submitted to SWFWMD in December 2003

6. Reverse Osmosis Feasibility Study, submitted to SWFWMD in December 2003

7. Comparison of Pasco County and Aloha Gardens water costs

8. Data submission by Aloha Utilities Inc., to the FPSC March 29, 2004

9. Tampa Bay Water Performance Standard

10. Phase II Report by Dr Levine, February 2004

11. References to Material Facts- Attachment to this presentation

12. Phase I and II Reports by Dr Levine, August 2003 and February 2004

13. Jeff Greenwell's Statement at CAC meeting, August 2003

14. PSC Memorandum Dec.3, 1998: summary of Water Quality Survey results

15. Aloha's brief before the DCA, November 2002

16. Recommendations, phase I report by Dr Levine, August 2003

17. Transcript of Jan. 2002 PSC hearing in New Port Richey

18. Aloha's Appeal before DCA June 2002

19. Aloha's Water Discoloration Information hand out, 1997/8

20. PSC Docket No 020413-SU, 2002

21. PSC Docket No 010503-WU Disposition of refunds- January 2004

Attachment
Reference 11.

MATERIAL FACTS
REFERRED TO DURING
THE HEARING OF CUSTOMERS' PETITION
April 8, 2004

PSC DOCKET 020896-WS

I. WATER PROCESSING METHODS AND OUTCOME

A. Aloha's Consulting Engineer Mr. Porter has denied the applicability to Aloha's water processing system of the well-recognized scientific fact [1] that the use of chlorination as the **sole** processing method for water containing hydrogen sulfide is associated with formation of **elemental sulfur and black water.**

Consumers will provide evidence that shows that Mr. Porter knew that the presence of elemental sulfur in water could seriously impact water quality and will assert that even if he did not know, as the consulting engineer that he is, *he should have known* that fact and advised his utility client accordingly.

B. Mr. Porter had personal knowledge that presence of elemental sulfur in processed water is associated with "lower disinfection efficiency, increased chances for bacterial contamination and growths in the distribution system"[2]. However, he does not seem to have shared this information in a direct manner with the FDEP or the PSC.

C. When very high concentrations of hydrogen sulfide were detected in well 9 between April and July of 2001, Aloha seemingly did not notify FDEP or PSC about the inability of the chlorinator at Well 9 to deal with these high levels of hydrogen sulfide without the production of significant amounts of elemental sulfur and associated water quality problems about which its consulting Engineer had prior knowledge.[3]

D. When the PSC, on the basis of Aloha's oft-repeated claims, inaccurately stated in its Order No PSC-99-0061-FOF-WS, " *Currently, Aloha is converting (oxidizing) all of the sulfides which are present in its raw water supply into a sulfate by chlorinating the* water" [4] Aloha, in spite of knowledge to the contrary, apparently did not notify PSC that such a statement was inaccurate.

E. Aloha's management, its legal firm and its consulting engineer Mr. Porter have claimed without scientific evidence that the **sole** cause for black water and rotten-egg smell in residential plumbing is the *in situ* and *de novo formation of hydrogen sulfide from sulfate*, without admitting that hydrogen sulfide could also be formed from elemental sulfur.[5]

F. Even though Aloha knew of a high hydrogen sulfide level in Well 9 before processed water from it was distributed into Wyndtree and Chelsea subdivisions, it installed a chlorinator whose theoretical ability to convert that level of hydrogen sulfide completely into sulfate was well below the necessary capacity. This would have resulted in elemental sulfur formation in processed water from that well frequently. Yet in 1997 Aloha denied that elemental sulfur was being formed during water processing in Aloha's wells.[6]

II. PRESENTATION OF EPIDEMIOLOGICAL DATA

G. Aloha insisted that the water distributed by Aloha was *'clean, clear and safe'* and *'pure'* without providing scientific evidence to establish that fact and carried on a propaganda war against Mike Fasano, the Representative of the citizens in the Florida Legislature and the customers from the Seven Springs Area accusing them of **politicizing** water quality issues.[7]

H. Aloha's management, its legal firm and its consulting engineer Mr. Porter have consistently claimed that the number of complaints about the poor quality of water is miniscule. They published newsletters claiming that only a few customers had water quality problems; in spite of surveys by customers and by the utility itself that have documented the contrary. [8]

I. Contrary to *Aloha's own interpretation of* a survey conducted in 1998 which showed close to 30% of its customers experienced black or gray water, Aloha's legal firm used the fact that only 30 customers testified at the PSC hearing in January 2002 to imply only a 1/10 of one percent of Aloha's customers were affected by poor water quality. It claimed before the District court of Appeals, ***"The PSC, galvanized by a small fraction of Aloha's customer base and motivated to please Representative Mike Fasano (who lives in Aloha's service area and who has substantially built his political career upon the demonization of Aloha over the last seven years) and frustrated by its own past lack of political will, elected to 'punish' Aloha for these perceived water quality concerns"*** [9].

J. When other utilities in the neighborhood realized the need for upgrading their processing methods to deal with instances of black water and have subsequently succeeded in reducing its incidence, Aloha has maintained since 1997 that such upgrades were unnecessary and were designed to placate a few vocal customers who had some other agenda than the resolution of the water quality problems faced by many customers. Further, it claimed that the only certain way to eliminate black water was expensive re-plumbing with CPVC, contrary to evidence from other utilities.[10]

This may have resulted in the PSC not being convinced about the need to order a timely and independent audit on its own about the appropriateness of chlorination as the sole method for the removal of hydrogen sulfide from raw water. The PSC was co-opted into repeating the unsubstantiated claim of Aloha about the absolute necessity for re-plumbing with CPVC.

III. ATTEMPTS TO OBSTRUCT DUE PROCESS

K. Aloha's legal firm has filed numerous briefs before the PSC to dismiss a petition submitted by aggrieved *'captive customers'* claiming that the PSC has no jurisdiction to hear the petition after admitting earlier that the *PSC has the right to revoke Aloha's certificate of authorization for due cause.*[11]

L. Aloha has consistently refused to be co-operative with the PSC mandated Aloha's Citizens' Advisory Committee in its efforts to find the causes of black water by obtaining accurate information about the methods used by Aloha to maintain the quality of its delivered water. **Aloha has insisted that it does not need to provide legitimate information to the CAC because *"You're not a regulatory agency, you're not stockholders, but you are customers"*[12].** Aloha has accused the CAC of *politicizing* the water quality issues in spite of the willingness of CAC to file 'no objection notices' before the PSC to facilitate agreements with Aloha in matters that might improve the quality of delivered water.[13]

M. Aloha has refused to implement short-term recommendations made by Dr Levine in her Phase I audit report to document whether or not improved monitoring and process control might diminish black water complaints, thereby denying customers an opportunity to understand whether such methods might improve water quality without the enormous increase in cost of water that Aloha's proposals for improving water quality will necessitate.[14]

N. Aloha tried to collect from its customers over **$650,000** for which it had no right, in order to offset the losses it suffered from *its own mismanagement of its business affairs.*[15]

Aloha has also been extremely reluctant to return to the customers the refunds that were due to them, until forced to do so by the intervention of the Attorney General's Office and Senator Mike Fasano.[16] It has now appealed to an Administrative Judge to overturn the decision by the PSC.[17]

IV. INAPPROPRIATE DATA COLLECTION AND DISSEMINATION

O. Aloha has taken water from the outside faucet of a customer's home and claimed that it contained higher levels of chlorine residual than the water could possibly contain[18]. Aloha's consulting engineer has maintained that the black sediment found in toilet tank is due to the corrosion of the plastic flotation ball in the tank and not due to the formation of copper sulfide[19].

P. Appropriateness and adequacy of collection of data, its recording and submission to FDEP[20] and its availability to PSC mandated CAC leave a lot to be desired.[12]

FOOT NOTES

1. Research thesis submitted by Troy Lyn, 1991 University of Central Florida, based on work done at Pinellas County Utility:
   Paper from American Water Works Association Proceedings –1993 Water Quality Technology Conference, November 7-11, 1993 Miami, Florida, Part II pages 981-991,submitted by FDEP staff member Mike LeRoy to John Starling of PSC (submission date unknown)

2. Letter from Mr. Porter to Mr. Bruce Bramlett in 1997 submitted as exhibit during PSC Public Hearing

3. MIEX Pilot Project Report October 2002 documents 20 measurements of hydrogen sulfide in raw water that cannot all be converted to sulfate at well 9 between a three-month period, April-July 2001

4. PSC Memorandum dated Oct.23, 1997, page 6; PSC Order NO PSC-99-0061-FOF-WS (Docket No 960545-WS) page 4

5. PSC hearing 1996 transcript pages 562-582; 1012-1026; Aloha's Newsletter and Press releases (date ?1997)

6. FDEP files on Wells 8 and 9: laboratory data from Haynes Laboratory May 12, 1994

7. Aloha's Newsletter (date ?1997) and Aloha response to customer complaints 2003

8. Aloha's Newsletter (date ?1997)

9. Aloha's brief before DCA November 2002

10. Aloha's Newsletter (date ?1997); Minutes of Copper Corrosion Project September 8, 2000; PSC hearing 2002

11. Aloha's brief to dismiss customer's petition: PSC hearing on Aloha's request for permission to back bill builders – audio transcript August 2002 Docket No 020413-SU

12. Audio transcript CAC meeting Jan.12, 2004

13. Letter dated 7/23/03 from Atty. Steve Burgess to Mr. Marshall Willis, PSC

14. Aloha Consulting engineer's answer to question at CAC meeting on 29 September 2003

15. PSC Docket No 020413-SU 2002

16. PSC Docket No 010503-WU. Disposition of Refunds -January 2004

17. Personal communication from Atty. Burgess to Dr. Kurien

18. Correspondence between Mr. Wayne Forehand and Aloha Utilities September 2003

19. Mr. Porter's statement during his visit to a customer's house in January 2002 to check on complaint of black water.

20. Samples of MOR sheets 1999 submitted to FDEP

ADDITIONAL NOTES:

Dr Levine's **Phase I** report submitted in August 2003 (pages 20 and 21) explains **the reason why during the period between April-July 2001, the chlorinator at Well 9 could not have converted all of the hydrogen sulfide in raw water into sulfate. Therefore, during that period elemental sulfur was an inevitable constituent of distributed water. Dr Levine has indicated that hydrogen sulfide can be produced from elemental sulfur as well as sulfate.**

Phase II report submitted in February of 2004 shows by analysis of data from all the wells of Aloha (page 21) that **sulfate and elemental sulfur are produced during the use of chlorination as the sole oxidizing agent.**

FDEP in August 2003 approved the following new guideline for control of copper pipe corrosion and black water. "**Direct chlorination shall not be used to remove (i.e. oxidize) 0.3 mg/L or more of total sulfide unless the elemental sulfur formed during chlorination is removed**".

V. ABRAHAM KURIEN

was recalled as a witness on behalf of the Citizens of the State of Florida, and, having been duly sworn, testified as follows:

DIRECT STATEMENT

DR. KURIEN: This morning I made a fairly long presentation and I thought I would not do the same this afternoon partly because a number of people who have spoken here have mentioned a lot of the points that I wanted to make. So I will simply highlight some of the things that I wanted to say.

The first thing I want to mention is the fact that we have given Aloha 12 months to attend to the matter of the poor quality of water, and now it is 21 months and they have not even introduced the very easily instituted methods that Dr. Levine had suggested in the first part of her report. In spite of that, the customers took a very objective view of what the solutions were. And to help them do that, they adopted four simple principles which were mentioned by Mr. Hise, which I want to again say in a little bit more detail, that any new method adopted shall have the ability to significantly reduce the incidence of black water and rotten egg odor in the water that comes out of domestic faucets. Two, any new method adopted and the financial expenditures necessary to have it installed and maintained shall not result in an unreasonable

increase in water costs above what is charged by neighboring utilities. Three, that the utility that takes responsibility for providing improved quality of water at reasonably comparable costs shall also publicly undertake to be transparent about its processing methodology and shall resolve any and all technical problems that arise in a scientific manner rather than by appeal to legal standards. That the utility shall document that it has contracted sources of water to maintain an adequate supply of drinking water for the Seven Springs area for at least ten years into the future.

It is on those four principles that we looked at the possibility of getting water from Aloha Utilities itself after they instituted new methods or of getting processed water from Pasco County, whose water is supplied essentially by the Tampa Bay Water.

The cost issue has been discussed at length; therefore, I'm not going to discuss it any further.

There are some obvious other advantages to it which has also been mentioned. But I want to spend a little time talking about our other concern, which has also been talked about at length which is the corporate culture, because I feel that the corporate culture is at the basis of the fact that Aloha has not made any attempt to improve its water quality in spite of it being known to everybody else that you cannot provide good quality water with the sole method of

chlorination.

We have already mentioned, both Dr. Gaul and myself, that Aloha has not adequately recognized, or even if they did recognize, that they don't completely communicate the true science to the agencies that were supposed to regulate them, which because of their own lack of perhaps competence in that area resulted in both the FDEP and perhaps even the PSC not recognizing that urgent measures were required as early as 1996.

The second point that I want to make is the fact that Aloha has downplayed the incidence of poor water quality. In fact, at the presentation made by Aloha attorneys to the district court of appeals, it said that less than one-tenth of one percent have problems with water quality; whereas, by their own survey interpreted in their own unique way it was 30 percent. **This tendency to avoid the truth to protect its** own interests at the risk of the customers' suffering does not serve as a good recommendation for Aloha to continue as our water provider.

Thirdly, I want to make a note of the fact that the customers have tried on a number of occasions to cooperate with Aloha, including my first suggestion about the formation of a Citizens Advisory Committee. Subsequently, we went even further by agreeing with Aloha to make changes in the recommendations or orders issued by the Public Service

Commission so that a new method can be instituted without delay. And yet in spite of our making that effort, they blocked or delayed the ability of Dr. Levine to continue with her audit without putting obstructionist demands on her.

Lastly, a point which has not been mentioned here before, which is the fact that, as you know, in August of 2002, and this fact may not be known to the rest of the customers who are here, under PSC Docket Number 020413-SU-2002 Aloha tried to collect $659,000 from its present customers which it had failed to collect from the builders that they were providing water connections for. This is a very serious ethical lapse on the part of Aloha because they should not have even considered that possibility. And I regret to say that the PSC staff in its recommendation was almost ready to allow Aloha to collect 75 percent of that amount from the customers. And but for the customer intervention at that time saying that it was an extremely inappropriate way to reimburse the mismanagement of a company by allowing them to collect money from its customers, that would have gone through. And that kind of concern for money verges on corporate greed, especially in view of the prolonged litigation that is involved.

Finally, I'd like to say that our anxiety about the corporate culture of Aloha is just as important and perhaps even more important than the cost of doing business with Aloha. Therefore, it must come as no surprise to the Public Service

ommission and perhaps hopefully to Aloha itself that we found hat the only logical thing the customers can do at this stage s to seek deletion of -- deletion of territory as the only ecourse that is open to us. This preferred option of the etitioners to be connected as retail customers of Pasco County ater utility will also provide them with water at a lower cost han Aloha can offer, assurance of continued water supply, a ore friendly and proactive customer service and improved water uality within a much shorter interval of time from now.

The Public Service Commission in the year 2000 xercised its authority and jurisdiction by an order, SC-00-0581-FOF-WS, to extend the territory of Aloha under an dministrative finding that it was in the public interest to do so. In that particular instance, Aloha had already violated lorida Statutes 367.045(2) by extending its service outside he area described in its original certificate of authorization or a period of nine years without notifying the PSC. **Aloha** as been cited on a number of occasions for failure to comply with the mandates of the PSC, FDEP, and, in fact, copper levels as high as 2.5 milligrams percent were detected in 1993 after the company was cited by the Florida Department of Environmental Protection. That PSC order is a precedent-setting event in which the PSC considered it appropriate usage, authority and jurisdiction for the furtherance of public welfare.

I would like to suggest to the Commission that the ase that the petitioners have presented today for deletion is lso very much in the public interest and for the welfare of hose who have suffered emotionally, physically and financially ecause of Aloha's unwillingness to attend to its customers' eeds with the same vigor that it has approached its interest s a private enterprise. Therefore, I would like to suggest hat Aloha as of this day, if not earlier, does not have the redentials to continue as a water provider of potable water. herefore, we request your deliberate and very careful onsideration of the choice that we, the people, have presented o you. We know that it is within your authority to grant our equest. Whether you will do so as an urgent matter of airness and justice to whom such has been denied during the ast decade remains the tasks that you must undertake as you onsider all that we have said to you this day. Thank you very much.

COMMISSIONER DEASON: Any questions?

COMMISSIONER BRADLEY: Yeah. I want to ask --

COMMISSIONER DEASON: Okay.

COMMISSIONER BRADLEY: Dr. Kurien, one of the -- and I'm just trying to get a feel for what the possibilities are. You know, one of the things that we discussed at the top of, of this session is, was mediation. Is that remotely a possibility?

UNIDENTIFIED SPEAKER: Commissioner Bradley, did you ear what the people said? We don't want --

COMMISSIONER DEASON: I'm sorry now. This is -- we nly can hear -- the court reporter can only record what's eing said into a microphone, and we do need to keep this rderly. If you need to come back and make a statement, I'll ive you that opportunity. But we need to keep comments from he audience at a minimum. Thank you for your understanding.

There has been a question raised and, Dr. Kurien, you an answer that question, if you wish.

COMMISSIONER BRADLEY: And let me explain why I'm sking that question. You know, we are trying to explore all, ll the possibilities as it relates to resolving an issue that recognize as being very, very serious, and it's just my pinion and it's strictly my opinion that sometimes these hings work when you have the two affected parties get together nd, and mediate a dispute. And I'm just asking a candid uestion. And I have heard what the folks have said, but we still are here to try and come up with a solution to this, and I can strongly agree with you and I can commit to you that there is going to be some movement in the affirmative on this, on this situation. But, again, just trying to figure out how to get started is, is the origin of my question.

DR. KURIEN: Commissioner Bradley, before I came to Florida I worked in New Mexico, Santa Fe, as a mediator between

the Anglo community, the Spanish community and the Native American community, so I have some experience of mediation. But it requires that everybody should be honest. That's an essential requirement for mediation, that they should be -- they should respect each other. So there are some basic conditions for mediation which have not been accepted by Aloha during the last three years that I've been here. One of the first things I did when I came to this community because of my experience was to speak at the January 2002 meeting, at which I offered to chair as a nonvoting member of the committee to solve this issue. And Mr. Deterding, I think it was, said, "That's a wonderful idea. We were just thinking about it two days ago." And I said, "Fine. I don't care whose idea it is, as long as it works." And Ms. Lila Jaber, who was the Chairman, said, "That's a good idea. Dr. Kurien, would you do that?" And I said I would be glad to do that.

And I waited -- I wrote to Mr. Watford two letters. I didn't get any reply. So I finally got in touch with the Public Service Commission and they arranged a teleconference at which we could talk. And as a courtesy to Aloha, I allowed them to talk first. And the first thing that came out of the mouth of Mr. Deterding was, "We will not talk about black water." And if -- he might think that I am bluffing this. I have a tape recording of that and I'll play it here, if you want, okay, to make sure that what I have said here is

perfectly true. It has been rumored that I did not reply to a letter that he sent me inviting the CAC to enter into negotiations with them. After consulting with the Public Service Commission, I wrote back. I sent a copy to the PSC, I sent a copy to OPC. They all received it. But one of the newspapers called me to say that Aloha claims that they didn't receive it. But that kind of attitude towards customers, when they are willing to negotiate with you to try to solve the issue for both groups, there is something fundamentally wrong with a corporate culture that cannot handle that. I'm a physician. I'm a physician. I could name the condition that causes that kind of problem, but I shall not. Okay?

So if it is essential for the Public Service Commission to go through an attempt at mediation, I will not stand in the way because I'm a man of peace. As I have tried many times, written to Mr. Watford and everybody else to say I like to solve as a scientific issue, and that is the only way to solve this. It cannot be solved as a legal issue. So they have to get off their legal pulpit, and I don't think they're ready to do that yet and that's why it will not work.

COMMISSIONER BRADLEY: And the reason why I asked that question is, is to put that on the record, and also to, to put it out there for all to hear, for the CAC to hear, for Aloha to hear and for the customers also, well, the customers who are affected directly by the black water to hear as a

proposition, and to have some mention of that officially on the record so that we at least know that that was discussed.

Now if mediation doesn't work, then that simply means then that this Commission will have to make a decision as to how to remedy the situation that currently exists, and sometimes that's not the best way for it to happen. It always is best if the company and the customers can get together. Now if that can't be done, then that simply means then that --

COMMISSIONER DEASON: All right. Folks, we've been here all day. We've been very courteous to you. And the Commissioner is speaking, and that's very discourteous while a Commissioner is speaking to have that type of reaction. I know that you want -- you're very sincere in your desires to cure this problem. Believe me, we're working on it. Give us an opportunity to ask our questions and to get answers. **It's just** common courtesy. Please do that.

COMMISSIONER BRADLEY: And let me say this, Commissioner Deason, I know that it's personally not directed at me. There are some very strong feelings about an issue that has been occurring in this community for a long, long time, and I know that it's an emotional issue and it's a health-related issue and we just have a situation where we have two parties who, who just have some strong feelings about how we can resolve this. And I know I'm not taking it personally, but you all are just giving me feedback as to how you all feel about

something that has been affecting your community for a long, long time. So I don't -- I'm not personally affected by it. But I'm just trying to put that out there to see, to test the water to see what -- not necessarily to get a reaction from you, but to, to put Aloha and all other parties on, on notice that this is what I would like to see happen. Now if it can't happen, then that means the Commission will have to make a decision.

DR. KURIEN: Commissioner Bradley, your water is at least clear. The last thing I would like to say is that the buck has to stop somewhere. We have tried to stop the buck at the level of the utility and ourselves. We have tried to stop the buck at the level of FDEP, which has given permission for Aloha to self-regulate itself, according to their own words. And I showed you one of the consequences of that. The buck now has to stop and it has, unfortunately, to stop with you. Thank you.

COMMISSIONER DEASON: Mr. Burgess, you've got two more witnesses; is that correct?

MR. BURGESS: Yes, that are listed.

COMMISSIONER DEASON: And then, sir, we'll get to you at the end of the official list and let you come back -- come forward again.

MR. BURGESS: Bob Bowman.

BOB BOWMAN

DR. KURIEN: Yes. I am Vadakumkaraputhenpurayil Abraham Kurien, my long name. This is an MOR, monthly operating report, submitted every month by Aloha to DEP. And I want to pass this around because it has one number at the top. They're supposed to enter a number every day. There's a long line from the top to the bottom. This is the kind of report that has been submitted to FDEP, and FDEP has been approving this as satisfactory. The last time I asked the question, "Are you a regulatory agency which ticks off everything or are you a supervisory agency which makes sure that what needs to be done is being done?"

MS. VALENTIC: Excuse me. Does Aloha not have -- does Aloha waters not have a chemist that would test this every day? Don't they have any facilities that they would, you know, test this water?

COMMISSIONER DEASON: I'm going to give the opportunity to the company to answer the question, if you have any information. But, as I indicated, DEP is the regulatory agency which sets the standards, sets the reports that have to be filed and the information that has to be filed. Whatever information we have on those reports that have been filed in our offices in Tallahassee as far as what is tested and how often, we'll be glad to share it with you. But we just don't have that physically with us right at this moment.

DR. KURIEN: Commissioner Deason, I'll be glad to

answer those questions for you because I know more about it than the Aloha person sitting here.

COMMISSIONER DEASON: Doctor, you may proceed.

DR. KURIEN: Yes. They have to report chlorine residue every day from the distribution of every valve. They have to report the lowest chlorine level at the site at which the well is so that they know what was the level, the lowest level at that site. They have to report the level as the lowest level in the distribution system. Once a month they have to test 25 sites within their distribution to make sure there is no bacterial contamination, and at the same time they test the chlorine levels. They do not test or they are not required to test for hydrogen sulfide, they are not required to test to see if there is any sulfur particles in it. So the amount of testing that has to be done is extremely minimal.

They test for copper once in three years. I recently had my water tested. There was 2.06 milligrams of copper. I couldn't see it. It requires to go up to about 3 or 4 milligrams per liter before you can see it, and the maximum allowed is 1.3 milligrams per liter. And if people are drinking water that looks clear, they are still consuming too much copper. And copper is not a benign chemical. It can worsen atherosclerosis, it can affect your eyes. There are a lot of problems with copper, and that's why I asked the health department to check whether Aloha tests for copper in those

areas where there is a problem. They say, we don't have to test. If that is the answer the utility is going to give because we have to test -- we don't have to test where there is a softener -- and that is legally true. I'm not saying that they're not legally within their rights not to do it. But if they were really concerned about their customers, they could go around and test and say this is too high. You would think the health department would take some responsibility. There is a basic dysfunctionality, I'm sorry to say this out loud in public, as far as this particular situation is concerned. The, the structure is so fragmented that nobody knows who's responsible, and Aloha has made hay (phonetic) out of it completely.

MS. VALENTIC: I would just like to say that I really wish Aloha would really do a little better job in testing the water. You know, if they're just testing for old things, they should test for everything. Where they might go is go to different communities that have different systems of water and maybe they'll learn something. Thank you.

COMMISSIONER DEASON: Mr. Burgess.

MR. BURGESS: Art Shaw.

ART SHAW

was called as a witness on behalf of the Citizens of the State of Florida, and, having been duly sworn, testified as follows:

DIRECT STATEMENT

RO Feasibility Study Report

for

Seven Springs Water System
Pasco County, Florida

Prepared for:

Aloha Utilities, Inc.
6915 Perrine Ranch Road
New Port Richey, FL 34655
(727) 372-0115

Submitted By:

David W. Porter, P.E.
3197 Ryans Court
Green Cove Springs, FL 32043
(904) 291-2744

December 2003

DEC. 9, 2003

Executive Summary

A. Report Purpose

Presently, the source water demands experienced by the Seven Springs Water System are greater than allowed by Aloha's existing Southwest Florida Water Management District (SWFWMD) Water Use Permit for its water supply wells. Source water demand will continue to increase into the future as the Seven Springs Water System Service Area is developed, requiring Aloha to obtain additional permitted source water capacity or alternative source water supply.

This report has been prepared in compliance with the Groundwater Withdrawal Compliance Plan attachment to Compliance Order SWF 62-15 issued on February 26, 2002 to Aloha Utilities, Inc. by the Southwest Florida Water Management District. Section III – Supply Side Conservation Measures, Subsection B. Alternative Supply Sources. The Groundwater Withdrawal Compliance Plan requires Aloha Utilities, Inc. to undertake a study to determine if it is feasible to meet Aloha's present and future water demands utilizing RO treatment of brackish water to supplement its existing Seven Springs water supply and treatment system.

B. Supplemental Water Supply Requirements

At this time, the average annual daily water demand experienced by the Seven Springs Water System is approximately 3 million gallons per day (MGD). Aloha's current SWFWMD Water Use Permit allows for annual average daily water withdrawals of 2.04 MGD. Therefore, currently 1 MGD (based on annual average daily demand (AADD)) of finished water is required to supplement the existing supplies that can be produced by the Seven Springs Water System when it is operated in conformance with the Water Use Permit issued by the SWFWMD.

It is projected that the Seven Springs Water Service Area will buildout by the year 2013. At that time, an additional 2.9 MGD (AADD) water demand over the 2003 value is projected. Therefore, at service area build out, the average annual daily demand for water will be 5.9 MGD (3.0 MGD existing and 2.9 MGD future). When the Annual Average Daily Water Demand is 5.9 MGD, the Maximum Daily Water Demand is projected to be 10 MGD.

C. Supplemental Water Sources

At this time, only two potential supplemental water sources, other than obtaining additional permitted withdrawals for Aloha's existing wells, have been identified. The first is to construct a water source consisting of a new brackish water wellfield, RO treatment facility and appurtenances, concentrate disposal facilities, various piping systems and storage facilities. The second potential source of supplemental water is to purchase it from Pasco County as bulk water.

D. RO Feasibility Study

This RO Feasibility study was undertaken to determine if it is feasible to develop a new finished water supply utilizing brackish raw water and RO technology for treatment.

THE ONLY LOGICAL OPTION THE CUSTOMERS HAVE

Honorable Commissioners,

Now that you have heard from Dr Gaul and myself about our reactions to Dr Levine's Technical Review of Aloha's water processing methods and facilities and the hydrogen peroxide option that Aloha is considering at the present time as the most appropriate one for improvement of water quality, I would request you to consider the context in which the customers see this offer from Aloha. **The petitioners after submitting their petition in July 2002 had hopes that Aloha would consider the need for water quality improvement as urgent.**[1] The customers, in spite of suffering the consequences of black water and foul smell in their homes gave Aloha and the regulatory agencies another 12 months in which to come up with some effective solutions to the customers' problems. Having been met with a lackadaisical approach to the issue by everyone concerned and by yet another legalistic claim that no further moves towards resolution of the problem could be attempted while the matter was in the District Court of Appeals, the customers felt that it was their burden to consider alternate options that are available for them. Aloha squandered its opportunity to meet with its customers and the regulatory agencies did not seem to consider it urgent to find out the scientific causes for the problems so that the issue can be addressed effectively once an appellate decision would be made. Thereby another 9 months have been spent in procrastination of action. Now at the last moment, there is an attempt to precipitate a sense of urgency that seemed to play no role at all in Aloha's deliberations before! **It is now almost 21 months since the customers submitted their petition and there has been no improvement of any sort in water quality. Even the very easily instituted methods suggested by Dr Levine in her Phase I report have not been put into effect.**

Therefore the petitioners are coming to this hearing with serious reservations about the good faith of the utility as well as the determination of the regulatory agencies whose responsibility it was to ensure that a competitive product was made available to

the captive customers of this monopoly utility long before 2004, ten years after the initial approach to the PSC for resolution, as Commissioner Deason will perhaps recall.[2] However, that has not prevented the customers from objectively considering all the options that may be theoretically available to them at this time. In their deliberations the customers have used four basic principles in the evaluation of their options.

They are:

1. That any new method adopted shall have the ability to significantly reduce the incidence of black water and rotten-egg odor in the water that comes out of domestic faucets:

2. That any new method adopted and the financial expenditures necessary to have it installed and maintained shall not result in an unreasonable increase in water costs above what is charged by neighboring utilities:

3. That the Utility that takes responsibility for providing improved quality of water at reasonably comparable costs shall also publicly undertake to be transparent about its processing methodology and shall resolve any and all technical problems that arise in a scientific manner rather than by appeal to legal standards:

4. That the Utility shall document that it has contracted sources of water to maintain an adequate supply of drinking water for the Seven Springs Area for at least ten years into the future.

After careful evaluation, the customers have chosen **one** as the alternative they want to be granted as the most suitable for them taking into consideration the events of the past and the possibilities for the foreseeable future.

The options the customers have considered can be divided into two different groups depending on where the distributed water will be obtained:

1. From **Raw water processed by Aloha Utilities, or**
2. From **Processed water obtained from Pasco County Water Utility and its suppliers.**

We have presented the details of these options and their implications, as we understand them to the PSC,[3] recognizing that we do not have all the information necessary for being totally specific about the relative costs because the capital expenditures involved are unknown to us.

The customers want to make special emphasis on the cost of these two categories of options. If the Seven Springs Area customers must stay with Aloha Utility, it appears to us that it would result in their paying much greater costs per 1000 gallons of water because the two methods for producing a 'competitive product' for which complete cost estimates are available from Aloha are prohibitive. It was estimated in 1997 that packed tower aeration would involve a capital cost of 10 million dollars. Inflation has increased that cost from 10 to 17 million dollars. Over 20-30 million dollars would be necessary if reverse osmosis is used, resulting in an even greater increase in water bills. Both of these methods will require a minimum of 3 years for installation. Such large financial investments as Aloha has indicated to process the relatively small amount of water for which Aloha has a Water Utilization Permit (WUP) will result in an enormous increase in unit cost of water for Aloha customers. **Aloha had calculated in 1997 that this would result in a 398% increase in water bills.**[4] The customer base of Aloha is too small for such a large financial burden to be placed on this community. Further, Aloha's water source is extremely limited and its WUP is only for 2.04 million gallons a day (MGD) and it is already pumping over 3.00MGD resulting in violation of SWFWMD permits by 50%.[5] Considering that Aloha's own estimate shows that it would require close to 6.0MGD per day by 2013[6] and it has no other foreseeable new water source, it seems very likely that the only way Aloha can obtain enough water to service the area is to **buy water in bulk from Pasco County at a rate much higher than its retail rate.** One would expect Aloha to charge approximately another 25%[7] for the costs of reprocessing and blending that water with the supply from its own wells, for the profit

margin it seeks and for business costs associated with this transaction. Essentially that means Aloha would become a pass through utility with Pasco County supplying two-thirds of its water demands and that the cost of such an arrangement, while it is of benefit to the Corporation would result **in significant additional costs to the consumer. The customers cannot and do not find any justification for such a middleman monopoly utility.** Additional infrastructure costs will become necessary to provide large enough connection to Aloha's network from Pasco County water mains and this also will have to be met by customers through rate increases. Even the most recent 'Conceptual Capital Costs and Incremental Annual O&M Costs" for Hydrogen Peroxide oxidation included in Schedule 2 and 3 in Aloha's recent submission to the PSC,[8] when combined with the unreported but additional costs of buying water at bulk rates from Pasco and the yet undetermined costs of pilot project, and other inevitable costs of instituting a new method gives little hope to the customers that water costs will be competitive.

On the other hand, it seems to us that the cost per 1000 gallons of water will be less expensive to the customers if Pasco County Utility is the **direct provider** for our drinking water. While we recognize capital costs are involved in a direct connection to Pasco, given the proximity of Pasco County Water Utilities supply lines to the Seven Springs area distribution network, it should not involve exorbitant costs to connect the petitioners to that water supply. These infrastructure costs are the same that Aloha would need to meet if Pasco County Utility becomes its major supplier. If such costs are amortized over a 20-year period as has been done on occasions where the county has taken over service areas from other private utilities, these additional costs can be very reasonable when applied as a surcharge over a period of 20 years rather than as a lump sum upfront cost, since the County Utility does not need a 10-12% profit margin that Aloha has been granted.

There are other obvious advantages also. Pasco County through its supplier, the Tampa Bay Water can provide us with water that meets a performance standard[9] that is much higher than the legal standard that Aloha has accepted as its norm and which does not take into consideration the variations in local water chemistry. Tampa Bay Water

provides aerated water and therefore meets one of the recommendations Dr Levine had indicated as a possible solution for black water in her Reports.[10] Pasco County Utility, in as much as it is a governmental utility, provides opportunity for customers to have direct input into its management especially through representative commissioners, who are more sensitive to citizen needs than Aloha as a private utility can be. Lastly, Pasco County through Tampa Bay Water has access to larger sources of water supply that will be guaranteed into the foreseeable future. It also appears that the infrastructure necessary for adequate connections between Pasco County Water lines and Seven Springs Area network can be provided much sooner, within a 12-month period.

Of even greater concern to the customers is the unpleasantness of the experience that they will have in the future based on Aloha's attitude to customer service and the treatment it has meted out to its customer base in the past. The customers have no desire to repeat into the future the experiences of the last 10 years. A significant number of customers would have abandoned Aloha for another provider as shown by the petitions submitted to the PSC except for the fact that the citizens have not had such an option because Aloha is a **monopoly utility**. We are providing the PSC with a list for the reasons of our unease in this regard.[11] We like to emphasize **four** areas of our concern.

First, the petitioners are extremely concerned about the way Aloha has informed the public and regulatory agencies about water chemistry and has inappropriately claimed adequacy for its current methodology and facilities in spite of evidence to the contrary, as has been explained in great detail by Dr John Gaul, and myself. Dr Levine's audit has also indicated that the present method and the facilities that Aloha currently has in place, did not possess the ability to provide processed water that has the stability not to undergo deterioration within the domestic plumbing within a short period after delivery. Hence her recommendation for upgrades to water processing methods. The technical staff of Aloha did not recognize this situation and take corrective steps earlier, but studiously avoided drawing attention to the limitations of the method and its facilities that are obvious from Dr Levine's Phase II report.[12] Since Aloha was allowed to "**self-regulate**" by the FDEP,[13] it has become the burden of customers to point out this matter to the PSC

and indicate how this scientific oversight or incompetence might be the real reason for the intensity and high frequency of black water and rotten-egg smell phenomena within certain areas of Seven Springs. **The unwillingness of Aloha to face the reality of scientific facts is of grave concern to the customers.** As Dr Gaul pointed out this does not forebode well for the future especially with a much more complicated and untried system of water processing that Aloha is now considering.

Secondly, the customers want the PSC to note that Aloha has downplayed the incidence of water quality issues by basing its statistics on the number of persons who have made individual presentations at PSC hearings rather than use the data obtained from the survey done in 1998.[14] Even accepting Aloha's own interpretation of the data (which may not be the usual way of evaluating data from surveys of this type), the incidence of consumer reports of unsatisfactory secondary water characteristics was close to 30% and not the less than 1/10 of one percent as reported by Aloha attorneys.[15] **This tendency to avoid the truth to protect its own interest at the risk of the customers' suffering does not serve as a good recommendation for Aloha to continue as our water provider.** We also have grave concerns about Aloha's record keeping and reporting activities.

Thirdly, the extremely legalistic attitude of Aloha in its dealing with its customers, especially since they have to bear the burden of legal costs through rate increases, indicates to the customers that a great deal of the financial resources of the customers is being wasted in unproductive litigation instead of improving the infrastructure of the processing plants. The primitive manual methods used by Aloha to monitor water parameters instead of providing updated automatic methods that could have provided better process control [16]towards optimum stability of water is difficult to excuse, especially after its service connections increased enormously since 1993. Its public expression of the desire[17] in January 2002 to create a Citizens' Advisory Committee to facilitate 'more expedient and compatible solutions' and the subsequent legal attempts to prevent the formation of such an entity to find scientific solutions to the problems faced by customers displays a cynicism that is also not acceptable. Aloha's

unwillingness to submit to regulatory supervision is exhibited by its appeal of the April 2002 Orders of the Public Service Commission to the District Court of Appeals.[18] Aloha's accusation that the PSC was trying to "punish" the Corporation when it tried to help the customers get better quality water is appalling. The customers consider Aloha's oft-repeated accusation and propaganda that the citizens' have "politicized" the issue of water quality for some other latent agenda,[19] a hostile and insulting attitude towards its customers. Aloha's attempt to prevent customers from getting a PSC hearing, while appealing in courts every decision of the PSC to help customers, is unforgivable. **These examples of extreme legal maneuvering do not appear to the customers to be a good recommendation for Aloha to continue as a water utility.**

Lastly, Aloha's attempt to view the customers as a cash cow is extremely distressing to the customers. As the PSC knows only too well, Aloha made an effort to collect **$659,000** from its present customers in 2002,[20] which it had absolutely no right even to consider as a legitimate approach, to offset its financial losses created by financial management inefficiency. This Corporate ethical lapse is extremely galling to the customers. Except for customer intervention, we might have been burdened with at least a significant portion of it! At this very moment, Aloha is trying extremely inappropriate legal maneuvers not to return to its customers escrowed funds of over **$275,000** authorized as interim rate increases but subsequently denied.[21] Not only the petitioners, but also all customers of Aloha must find this verges on corporate greed, especially in view of the prolonged litigation involved.

Such being the anxiety that we have about the financial costs to the customers if they are forced to remain with Aloha Utility and the even more serious concerns about Aloha's attitude towards its customers, it must come as no surprise to the PSC and even to Aloha itself that the petitioners after close to a decade of unpleasant experiences now seek **deletion of territory as the only recourse** that they have to improve their customer status and release themselves from captivity. **This preferred option of the petitioners to be connected as retail customers of Pasco County Water Utility will also provide them with water at a lower cost than Aloha can offer, assurance of continued water**

supply, a more friendly and proactive customer service and improved water quality within a much shorter interval of time from now. When Aloha had the chance to create a win-win situation for itself and the customers soon after the PSC hearing in January 2002, it deliberately rejected that opportunity, because it wanted to protect its interests at great risk to the customers. That is an indication to the petitioners that the corporate culture of Aloha is dominated by legalism and total disregard for its customers. **The customers are not masochistic enough to want to continue this relationship into the future. That the customers want their water provider to have a more customer oriented corporate culture is an extremely important point that we want the PSC to appreciate.**

Now that I have presented these well documented reasons for our freedom from the statutory imprisonment that we have been under for many years, we want the Commissioners, who have been given the police powers of the State of Florida to "***protect public health, safety and welfare***", to consider very carefully whether Aloha Utilities now has the credentials to be a drinking water provider for the citizens of Seven Springs or whether the PSC should grant the citizens the remedy that they are seeking of deletion of territory. **In the past the laws of this State have been used to protect the interests of a private corporation and to retain its monopoly status in spite of it not delivering to the customers a 'competitive product'. To continue to allow Aloha to be in the business of being a water utility in the context of what we have said here and documented extensively would be criminal injustice to the petitioners.**

The Public Service Commission in the year 2000 exercised its authority and jurisdiction by Order No PSC 00-0581-FOF-WS to extend the territory of Aloha under an administrative finding that it was in the 'public interest' to do so. In that particular instance Aloha had already violated Florida Statutes 367.045 (2) by extending its service outside the area described in its original certificate of authorization for a period of nine years without notifying the PSC. That PSC Order is a precedent setting event in which the PSC considered it appropriate to use its authority and jurisdiction for the furtherance of 'public welfare'. I would like to

suggest to the Commission that the case that the petitioners are making today for deletion is also very much in the 'public interest' and for the welfare of those who have suffered emotionally, physically and financially because of Aloha's unwillingness to attend to its customers' needs with the same vigor that it has approached its interest as a private enterprise.

Therefore, we request your deliberate and careful consideration of the choice that WE, the people have presented to you. We know that it is within your authority to grant our request. Whether you will do so as an urgent matter of fairness and justice to whom such has been denied during the last decade remains a task that you must undertake as you listen to the customers and petitioners who will make their presentations to you today.

Thank you.

V. Abraham Kurien, M.D.

REFERENCES

1. Customer Petition, July 15, 2002, PSC Docket No 0208976

2. Acknowledgement by the PSC Chairman Terry Deason, dated June 23, 1993 of a copy of letter from Mr. Ray Flanders to Aloha Utilities

3. OPTIONS THAT CUSTOMERS MAY HAVE: A THEORETICAL ANALYSIS OF TIME FRAME, COST IMPLICATIONS, WATER QUALITY AND MANAGEMENT EFFECTIVE NESS, submitted to the PSC through OPC.

4. Attachment 4 to the PSC Memorandum dated Oct.23, 1997: Docket No 960545-WS

5. Reverse Osmosis Feasibility Study, submitted to SWFWMD in December 2003

6. Reverse Osmosis Feasibility Study, submitted to SWFWMD in December 2003

7. Comparison of Pasco County and Aloha Gardens water costs

8. Data submission by Aloha Utilities Inc., to the FPSC March 29, 2004

9. Tampa Bay Water Performance Standard

10. Phase II Report by Dr Levine, February 2004

11. References to Material Facts- Attachment to this presentation

12. Phase I and II Reports by Dr Levine, August 2003 and February 2004

13. Jeff Greenwell's Statement at CAC meeting, August 2003

14. PSC Memorandum Dec.3, 1998: summary of Water Quality Survey results

15. Aloha's brief before the DCA, November 2002

16. Recommendations, phase I report by Dr Levine, August 2003

17. Transcript of Jan. 2002 PSC hearing in New Port Richey

18. Aloha's Appeal before DCA June 2002

19. Aloha's Water Discoloration Information hand out, 1997/8

20. PSC Docket No 020413-SU, 2002

21. PSC Docket No 010503-WU Disposition of refunds- January 2004

Attachment
Reference 11.

MATERIAL FACTS
REFERRED TO DURING
THE HEARING OF CUSTOMERS' PETITION
April 8, 2004

PSC DOCKET 020896-WS

I. WATER PROCESSING METHODS AND OUTCOME

A. Aloha's Consulting Engineer Mr. Porter has denied the applicability to Aloha's water processing system of the well-recognized scientific fact [1] that the use of chlorination as the **sole** processing method for water containing hydrogen sulfide is associated with formation of **elemental sulfur and black water.**

Consumers will provide evidence that shows that Mr. Porter knew that the presence of elemental sulfur in water could seriously impact water quality and will assert that even if he did not know, as the consulting engineer that he is, *he should have known* that fact and advised his utility client accordingly.

B. Mr. Porter had personal knowledge that presence of elemental sulfur in processed water is associated with "lower disinfection efficiency, increased chances for bacterial contamination and growths in the distribution system"[2]. However, he does not seem to have shared this information in a direct manner with the FDEP or the PSC.

C. When very high concentrations of hydrogen sulfide were detected in well 9 between April and July of 2001, Aloha seemingly did not notify FDEP or PSC about the inability of the chlorinator at Well 9 to deal with these high levels of hydrogen sulfide without the production of significant amounts of elemental sulfur and associated water quality problems about which its consulting Engineer had prior knowledge.[3]

D. When the PSC, on the basis of Aloha's oft-repeated claims, inaccurately stated in its Order No PSC-99-0061-FOF-WS, *" Currently, Aloha is converting (oxidizing) **all** of the sulfides which are present in its raw water supply into a sulfate by chlorinating the* water" [4] Aloha, in spite of knowledge to the contrary, apparently did not notify PSC that such a statement was inaccurate.

E. Aloha's management, its legal firm and its consulting engineer Mr. Porter have claimed without scientific evidence that the **sole** cause for black water and rotten-egg smell in residential plumbing is the *in situ* and *de novo formation of hydrogen sulfide from sulfate*, without admitting that hydrogen sulfide could also be formed from elemental **sulfur.**[5]

F. Even though Aloha knew of a high hydrogen sulfide level in Well 9 before processed water from it was distributed into Wyndtree and Chelsea subdivisions, it installed a chlorinator whose theoretical ability to convert that level of hydrogen sulfide completely into sulfate was well below the necessary capacity. This would have resulted in elemental sulfur formation in processed water from that well frequently. Yet in 1997 Aloha denied that elemental sulfur was being formed during water processing in Aloha's wells.[6]

II. PRESENTATION OF EPIDEMIOLOGICAL DATA

G. Aloha insisted that the water distributed by Aloha was *'clean, clear and safe'* and *'pure'* without providing scientific evidence to establish that fact and carried on a propaganda war against Mike Fasano, the Representative of the citizens in the Florida Legislature and the customers from the Seven Springs Area accusing them of **politicizing** water quality issues.[7]

H. Aloha's management, its legal firm and its consulting engineer Mr. Porter have consistently claimed that the number of complaints about the poor quality of water is miniscule. They published newsletters claiming that only a few customers had water quality problems; in spite of surveys by customers and by the utility itself that have documented the contrary. [8]

I. Contrary to *Aloha's own interpretation of* a survey conducted in 1998 which showed close to 30% of its customers experienced black or gray water, Aloha's legal firm used the fact that only 30 customers testified at the PSC hearing in January 2002 to imply only a 1/10 of one percent of Aloha's customers were affected by poor water quality. It claimed before the District court of Appeals, ***"The PSC, galvanized by a small fraction of Aloha's customer base and motivated to please Representative Mike Fasano (who lives in Aloha's service area and who has substantially built his political career upon the demonization of Aloha over the last seven years) and frustrated by its own past lack of political will, elected to 'punish' Aloha for these perceived water quality concerns"*** [9].

J. When other utilities in the neighborhood realized the need for upgrading their processing methods to deal with instances of black water and have subsequently succeeded in reducing its incidence, Aloha has maintained since 1997 that such upgrades were unnecessary and were designed to placate a few vocal customers who had some other agenda than the resolution of the water quality problems faced by many customers. Further, it claimed that the only certain way to eliminate black water was expensive re-plumbing with CPVC, contrary to evidence from other utilities.[10]

This may have resulted in the PSC not being convinced about the need to order a timely and independent audit on its own about the appropriateness of chlorination as the sole method for the removal of hydrogen sulfide from raw water. The PSC was co-opted into repeating the unsubstantiated claim of Aloha about the absolute necessity for re-plumbing with CPVC.

III. ATTEMPTS TO OBSTRUCT DUE PROCESS

K. Aloha's legal firm has filed numerous briefs before the PSC to dismiss a petition submitted by aggrieved '*captive customers'* claiming that the PSC has no jurisdiction to hear the petition after admitting earlier that the *PSC has the right to revoke Aloha's certificate of authorization for due cause.*[11]

L. Aloha has consistently refused to be co-operative with the PSC mandated Aloha's Citizens' Advisory Committee in its efforts to find the causes of black water by obtaining accurate information about the methods used by Aloha to maintain the quality of its delivered water. **Aloha has insisted that it does not need to provide legitimate information to the CAC because *"You're not a regulatory agency, you're not stockholders, but you are customers"*[12].** Aloha has accused the CAC of *politicizing* the water quality issues in spite of the willingness of CAC to file 'no objection notices' before the PSC to facilitate agreements with Aloha in matters that might improve the quality of delivered water.[13]

M. Aloha has refused to implement short-term recommendations made by Dr Levine in her Phase I audit report to document whether or not improved monitoring and process control might diminish black water complaints, thereby denying customers an opportunity to understand whether such methods might improve water quality without the enormous increase in cost of water that Aloha's proposals for improving water quality will necessitate.[14]

N. Aloha tried to collect from its customers over **$650,000** for which it had no right, in order to offset the losses it suffered from *its own mismanagement of its business affairs.*[15]

Aloha has also been extremely reluctant to return to the customers the refunds that were due to them, until forced to do so by the intervention of the Attorney General's Office and Senator Mike Fasano.[16] It has now appealed to an Administrative Judge to overturn the decision by the PSC.[17]

IV. INAPPROPRIATE DATA COLLECTION AND DISSEMINATION

O. Aloha has taken water from the outside faucet of a customer's home and claimed that it contained higher levels of chlorine residual than the water could possibly contain[18]. Aloha's consulting engineer has maintained that the black sediment found in toilet tank is due to the corrosion of the plastic flotation ball in the tank and not due to the formation of copper sulfide[19].

P. Appropriateness and adequacy of collection of data, its recording and submission to FDEP[20] and its availability to PSC mandated CAC leave a lot to be desired.[12]

FOOT NOTES

1. Research thesis submitted by Troy Lyn, 1991 University of Central Florida, based on work done at Pinellas County Utility:
   Paper from American Water Works Association Proceedings –1993 Water Quality Technology Conference, November 7-11, 1993 Miami, Florida, Part II pages 981-991,submitted by FDEP staff member Mike LeRoy to John Starling of PSC (submission date unknown)

2. Letter from Mr. Porter to Mr. Bruce Bramlett in 1997 submitted as exhibit during PSC Public Hearing

3. MIEX Pilot Project Report October 2002 documents 20 measurements of hydrogen sulfide in raw water that cannot all be converted to sulfate at well 9 between a three-month period, April-July 2001

4. PSC Memorandum dated Oct.23, 1997, page 6; PSC Order NO PSC-99-0061-FOF-WS (Docket No 960545-WS) page 4

5. PSC hearing 1996 transcript pages 562-582; 1012-1026; Aloha's Newsletter and Press releases (date ?1997)

6. FDEP files on Wells 8 and 9: laboratory data from Haynes Laboratory May 12, 1994

7. Aloha's Newsletter (date ?1997) and Aloha response to customer complaints 2003

8. Aloha's Newsletter (date ?1997)

9. Aloha's brief before DCA November 2002

10. Aloha's Newsletter (date ?1997); Minutes of Copper Corrosion Project September 8, 2000; PSC hearing 2002

11. Aloha's brief to dismiss customer's petition: PSC hearing on Aloha's request for permission to back bill builders – audio transcript August 2002 Docket No 020413-SU

12. Audio transcript CAC meeting Jan.12, 2004

13. Letter dated 7/23/03 from Atty. Steve Burgess to Mr. Marshall Willis, PSC

14. Aloha Consulting engineer's answer to question at CAC meeting on 29 September 2003

15. PSC Docket No 020413-SU 2002

16. PSC Docket No 010503-WU. Disposition of Refunds -January 2004

17. Personal communication from Atty. Burgess to Dr. Kurien

18. Correspondence between Mr. Wayne Forehand and Aloha Utilities September 2003

19. Mr. Porter's statement during his visit to a customer's house in January 2002 to check on complaint of black water.

20. Samples of MOR sheets 1999 submitted to FDEP

ADDITIONAL NOTES:

Dr Levine's **Phase I** report submitted in August 2003 (pages 20 and 21) explains **the reason why during the period between April-July 2001, the chlorinator at Well 9 could not have converted all of the hydrogen sulfide in raw water into sulfate. Therefore, during that period elemental sulfur was an inevitable constituent of distributed water. Dr Levine has indicated that hydrogen sulfide can be produced from elemental sulfur as well as sulfate.**

Phase II report submitted in February of 2004 shows by analysis of data from all the wells of Aloha (page 21) that **sulfate and elemental sulfur are produced during the use of chlorination as the sole oxidizing agent.**

FDEP in August 2003 approved the following new guideline for control of copper pipe corrosion and black water. **"Direct chlorination shall not be used to remove (i.e. oxidize) 0.3 mg/L or more of total sulfide unless the elemental sulfur formed during chlorination is removed".**

04-Dec-01

3E COMPANY
1905 Aston Avenue, #100
Carlsbad, CA 92008
Ph: 760-602-8700
Fax: 760-602-8888

Material Safety Data Sheet Transmittal Form

Request #: 510199
Processed By: Patty Brown

Recipient:

ATTN: DEJ DAHN

PFIZER
717-627-9773

Requester:

DEJ DAHN

3ECORP 01
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Index3E	Manufacturer ORDERED/Actual	Product Name ORDERED/Actual	UPC	Item SKU
R	**The MSDS is attached for the following product(s).**			
SICC00374701		CUPRIC SULFIDE		
Verified Current: 3/22/00	Sigma-Aldrich	Copper (II) Sulfide, Powder, -100 Mesh, 99+%		

END OF ORDER DETAIL - Request # 510199

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[redacted]

M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1. - - - - - - - - - CHEMICAL IDENTIFICATION- - - - - - - - - -
CATALOG #: 342467
NAME: COPPER(II) SULFIDE, POWDER, -100 MESH, 99+%

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - - -
CAS #: 1317-40-4
MF: CUS
EC NO: 215-271-2

SYNONYMS
C I. 77450 * C.I. PIGMENT BLUE 34 * COPPER BLUE * COPPER MONOSULFIDE * COPPER(2+) SULFIDE * CUPRIC SULFIDE * HORACE VERNET'S BLUE * MONOCOPPER MONOSULFIDE * OIL BLUE *

SECTION 3. - - - - - - - - - - HAZARDS IDENTIFICATION - - - - - - - - -

LABEL PRECAUTIONARY STATEMENTS
MOISTURE SENSITIVE
STORE UNDER NITROGEN.
PURITY BASED ON METALS ANALYSIS.

SECTION 4. - - - - - - - - - - FIRST-AID MEASURES- - - - - - - - - - -
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.
IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 5. - - - - - - - - - FIRE FIGHTING MEASURES - - - - - - - - - -

EXTINGUISHING MEDIA
WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. - - - - - - - - - ACCIDENTAL RELEASE MEASURES- - - - - - - - -
WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.
SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.
AVOID RAISING DUST.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - - - - - - HANDLING AND STORAGE- - - - - - - - - - -
REFER TO SECTION 8.

SECTION 8. - - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - - -
CHEMICAL SAFETY GOGGLES.
COMPATIBLE CHEMICAL-RESISTANT GLOVES.
NIOSH/MSHA-APPROVED RESPIRATOR.
SAFETY SHOWER AND EYE BATH

MECHANICAL EXHAUST REQUIRED.
AVOID INHALATION
AVOID CONTACT WITH EYES, SKIN AND CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.

SECTION 9. - - - - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - - - - -

APPEARANCE AND ODOR
DARK BLUE OR BLACK POWDER

SECTION 10. - - - - - - - - -STABILITY AND REACTIVITY - - - - - - - - -

STABILITY
STABLE.

INCOMPATIBILITIES
STRONG OXIDIZING AGENTS
STRONG ACIDS
MAY DECOMPOSE ON EXPOSURE TO MOIST AIR OR WATER.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
SULFUR OXIDES
HYDROGEN SULFIDE GAS

SECTION 11. - - - - - - - - - TOXICOLOGICAL INFORMATION - - - - - - - -

ACUTE EFFECTS
MAY BE HARMFUL BY INHALATION, INGESTION, OR SKIN ABSORPTION.
MAY CAUSE EYE IRRITATION
MAY CAUSE SKIN IRRITATION.
MATERIAL MAY BE IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.
TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

ADDITIONAL INFORMATION
CHRONIC COPPER POISONING IS TYPIFIED BY HEPATIC CIRRHOSIS, BRAIN DAMAGE AND DEMYELINATION, KIDNEY DEFECTS, AND COPPER DEPOSITION IN THE CORNEA AS EXEMPLIFIED BY HUMANS WITH WILSON'S DISEASE. IT HAS ALSO BEEN REPORTED THAT COPPER POISONING HAS LEAD TO HEMOLYTIC ANEMIA AND ACCELERATES ARTERIOSCLEROSIS.

RTECS #: GL8912000
COPPER(II) SULFIDE
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. - - - - - - - - - ECOLOGICAL INFORMATION - - - - - - - - - -

DATA NOT YET AVAILABLE.

SECTION 13. - - - - - - - - - DISPOSAL CONSIDERATIONS - - - - - - - - -

BURY IN A LANDFILL SITE APPROVED FOR THE DISPOSAL OF CHEMICAL AND HAZARDOUS WASTES.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. - - - - - - - - - - TRANSPORT INFORMATION - - - - - - - - -

CONTACT ALDRICH CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. - - - - - - - - - REGULATORY INFORMATION - - - - - - - - - -

REVIEWS, STANDARDS, AND REGULATIONS
OEL=MAK
OEL-ARAB REPUBLIC OF EGYPT:TWA 0.1 MG(CU)/M3 (FUME) JAN 1993
OEL-AUSTRALIA:TWA 0.2 MG(CU)/M3 (FUME) JAN 1993
OEL-AUSTRALIA:TWA 1 MG(CU)/M3 (DUST) JAN 1993
OEL-BELGIUM:TWA 0.2 MG(CU)/M3 (FUME) JAN 1993
OEL-BELGIUM:TWA 1 MG(CU)/M3 (DUST) JAN 1993
OEL-FINLAND:TWA 0.2 MG(CU)/M3 (FUME) JAN 1993
OEL-FINLAND:TWA 1 MG(CU)/M3 (DUST) JAN 1993
OEL-GERMANY:TWA 0.1 MG(CU)/M3 (FUME) JAN 1993
OEL-GERMANY:TWA 1 MG(CU)/M3 (DUST) JAN 1993
OEL-HUNGARY:TWA 0.2 MG(CU)/M3;STEL 0.4 MG(CU)/M3 (DUST) JAN 1993
OEL-INDIA:TWA 0.2 MG(CU)/M3 (FUME) JAN 1993
OEL-THE NETHERLANDS:TWA 02 MG(CU)/M3 (FUME) JAN 1993
OEL-THE NETHERLANDS:TWA 1 MG(CU)/M3 (DUST) JAN 1993

OEL-THE PHILIPPINES:TWA 1.0 MG(CU)/M3 (FUME) JAN 1993
OEL-RUSSIA:STEL 0.5 PPM (1 MG(CU)/M3; (DUST) JAN 1993
OEL-SWEDEN:TWA 0.2 MG(CU)/M3 (RESP. DUST) JAN 1993
OEL-SWEDEN:TWA 0.2 MG(CU)/M3 (FUME) JAN 1993
OEL-SWEDEN:TWA 1 MG(CU)/M3 (TOTAL DUST) JAN 1993
OEL-SWITZERLAND:TWA 0.1 MG(CU)/M3;STEL 0.2 MG(CU)/M3 (FUME) JAN 1993
OEL-SWITZERLAND:TWA 1 MG(CU)/M3;STEL 1 MG(CU)/M3 JAN 1993
OEL-THAILAND:TWA 0.1 MG(CU)/M3 (FUME) JAN 1993
OEL-THAILAND:TWA 1 MG(CU)/M3 JAN 1993
OEL-UNITED KINGDOM:TWA 0.2 MG(CU)/M3 (FUME) JAN 1993
OEL-UNITED KINGDOM:TWA 1 MG(CU)/M3 JAN 1993
NOES 1983: HZD T2084; NIS 5; TNF 723; NOS 5; TNE 4151; TFE 246
EPA TSCA SECTION 8(B: CHEMICAL INVENTORY

U.S. INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

SECTION 16. - - - - - - - - - - - OTHER INFORMATION- - - - - - - - - - - -

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U.S. Environmental Protection

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-27

List of Drinking Water Contaminants & MCLs

National Primary Drinking Water Regulations

National Primary Drinking Water Regulations (NPDWRs or primary standards) are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water. Vist the list of regulated contaminants with links for more details.

- List of Contaminants & their Maximum Contaminant Level (MCLs)
- Setting Standards for Safe Drinking Water to learn about EPA's standard-setting process
- EPA's Regulated Contaminant Timeline (PDF File)
- National Primary Drinking Water Regulations [XT Disclaimer] - The complete regulations regarding these contaminants availible from the Code of Federal Regulations Website

National Secondary Drinking Water Regulations

National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

- List of National Secondary Drinking Water Regulations
- National Secondary Drinking Water Regulations [XT Disclaimer] - The complete regulations regarding these contaminants availible from the Code of Federal Regulations Website.

Unregulated Contaminants

This list of contaminants which, at the time of publication, are not subject to any proposed or promulgated national primary drinking water regulation (NPDWR), are known or anticipated to occur in public water systems, and may require regulations under SDWA. For more information check out the list, or vist the Drinking Water Contaminant Candidate List (CCL) website.

- List of Unregulated Contaminants

Total Trihalomethanes (TTHMs)	none[7] / n/a[6]	0.10 / 0.080	Liver, kidney or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection

Disinfectants

	[1] [2]	[1] [2]		
Chloramines (as Cl_2)	MRDLG=4[1]	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort, anemia	Water additive used to control microbes
Chlorine (as Cl_2)	MRDLG=4[1]	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes
Chlorine dioxide (as ClO_2)	MRDLG=0.8[1]	MRDL=0.8[1]	Anemia; infants & young children: nervous system effects	Water additive used to control microbes

Inorganic Chemicals

	[1] [2]	[1] [2]		
Antimony	0.006	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	0[7]	0.010 as of 01/23/06	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards, runoff from glass & electronicsproduction wastes
Asbestos (fiber >10 micrometers)	7 million fibers per liter	7 MFL	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits

Top...

Consumer Factsheet on: COPPER

What is Copper and how is it used?

Copper is a metal found in natural deposits as ores containing other elements. It is widely used in household plumbing materials.

Why is Copper being regulated?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for copper has been set at 1.3 parts per million (ppm) because EPA believes this level of protection would not cause any of the potential health problems described below.

Since copper contamination generally occurs from corrosion of household copper pipes, it cannot be directly detected or removed by the water system. Instead, EPA is requiring water systems to control the corrosiveness of their water if the level of copper at home taps exceeds an Action Level.

The Action Level for copper has also been set at 1.3 ppm because EPA believes, given present technology and resources, this is the lowest level to which water systems can reasonably be required to control this contaminant should it occur in drinking water at their customer s home taps.

These drinking water standards and the regulations for ensuring these standards are met, are called National Primary Drinking Water Regulations. All public water supplies must abide by these regulations.

What are the health effects?

Short- and Long-term effects: Copper is an essential nutrient, required by the body in very small amounts. However, EPA has found copper to potentially cause the following health effects when people are exposed to it at levels above the Action Level for relatively short periods of time: stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson s disease may be more sensitive than others to the effects of copper contamination.

How much Copper is produced and released to the environment?

Copper may occur in drinking water either by contamination of the source water used by the water system, or by corrosion of copper plumbing. Corrosion of plumbing is by far the greatest cause for concern. Copper is rarely found in source water, but copper mining and smelting operations and municipal incineration may be sources of contamination.

From 1987 to 1993, according to the Toxics Release Inventory copper compound releases to land and water totaled nearly 450 million lbs., of which nearly all was to land. These releases were primarily from copper smelting industries. The largest releases occurred in Utah. The largest direct releases to water occurred in Tennessee.

What happens to Copper when it is released to the environment?

All water is corrosive toward copper to some degree, even water termed noncorrosive or water treated to make it less corrosive. Corrosivity toward copper is greatest in very acidic water. Many of the other factors that affect the corrosivity of water toward lead can also be expected to affect the corrosion of copper.

How will Copper be detected in and removed from my drinking water?

The regulation for copper became effective in 1992. Between 1993 and 1995, EPA required your water supplier to collect water samples from household taps twice a year and analyze them to find out if copper is present above 1.3 ppm in more than 10 percent of all homes tested. If it is present above this level, the system must continue to monitor this contaminant twice a year.

If contaminant levels are found to be consistently above the Action level, your water supplier must take steps to reduce the amount of copper so that it is consistently below that level. The following treatment methods have been approved by EPA for controlling copper: Corrosion control.

How will I know if Copper is in my drinking water?

If the levels of copper exceed the Action Level, the system must notify the public via newspapers, radio, TV and other means. Customers will be informed of what they can do at home to lower their exposure to copper. Additional actions, such as providing alternative drinking water supplies, may be required to prevent serious risks to public health.

Drinking Water Standards:

MCLG: 1.3 ppm
Action level: 1.3 ppm

Copper Releases to Water and Land, 1987 to 1993 (in pounds):

	Water	Land
TOTALS	1,538,148	442,082,245

Top Ten States *

UT	55,350	153,501,500
NM	0	130,682,387
AZ	2,636	104,619,532
MI	19,763	11,172,897
NY	66,57	10,017,766
MT	0	8,696,153
TN	301,417	1,208,804
MO	250	1,486,000
AL	41,213	513,536
MD	78,601	270,945

Major Industries*

Primary copper smelting	7,591	201,214,264
Other nonferrous smelt.	4,414	11,317,048
Plastic materials	44,422	9,637,850
Blast furnaces, steel	156,982	3,229,752
Poultry slaughtering	0	1,249,750
Copper rolling, drawing	17,253	941,075
Ind. organic chems	28,936	827,356
Prepared feeds, misc.	1,038	760,094
Ind. inorganic chems	220,503	527,458

* Water/Land totals only include facilities with releases greater than a certain amount - usually 1000 to 10,000 lbs.

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Consumer Factsheet on: CYANIDE

What is Cyanide and how is it used?

Cyanide is a carbon-nitrogen chemical unit which combines with many organic and inorganic compounds. The most commonly used form, hydrogen cyanide, is mainly used to make the compounds needed to make nylon and other synthetic fibers and resins. Other cyanides are used as herbicides.

Why is Cyanide being regulated?

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine safe levels of chemicals in drinking water which do or may cause health problems. These non-enforceable levels, based solely on possible health risks and exposure, are called Maximum Contaminant Level Goals.

The MCLG for cyanide has been set at 0.2 parts per million (ppm) because EPA believes this level of protection would not cause any of the potential health problems described below.

FLORIDA DEPARTMENT OF HEALTH

Jeb Bush
Governor

John O. Agwunobi, M.D., M.B.A.
Secretary

March 22, 2002

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue
New Port Richey, FL 34655-4716

Dear Dr. Kurien:

Thank you for your March 6 letter outlining your concerns related to the quality of drinking water produced by Aloha Utilities in Pasco County. The Department of Health has been working with other state agencies in addressing this issue. This department participated, together with the Department of Environmental Protection (DEP) and the Florida Public Service Commission, in the Interagency Copper Pipe Corrosion Project mentioned in your letter. This interagency workgroup was formed to address the issue of both black water and copper pipe corrosion, not only as pertaining to the Aloha system, but on other similar cases.

Our review of the available water quality monitoring data from the Aloha system, gives no indication that a health threat exists related to the quality of the drinking water. The data shows that the problem is aesthetic in nature. While not a health threat, poor aesthetic water quality is also important to the consumers. In the case of Aloha Utilities, an adequate solution requires that the chemistry of the groundwater source be fully analyzed and that appropriate water treatment equipment be installed to address this water chemistry. The DEP has informed us that they have already made arrangements, with the help of an outside contractor, to conduct the additional water sampling needed to determine the type of treatment that may be needed.

In addition, a consensus must be arrived regarding the issue of paying for the necessary water treatment plant modifications. It is believed that once these remaining issues are solved, water treatment equipment can be installed to produce drinking water of a higher aesthetic quality.

Thanks again for writing. If you desire any additional information, please feel free to contact Mr. Ed Bettinger or Mr. Pepe Menendez at (850) 245-4240.

Sincerely,

John O. Agwunobi, M.D., M.B.A.
Secretary, Department of Health

JOA/eab

From

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue,
NEW PORT RICHEY, FL 34655-4716
(727) 376-9747

To

THE STATE OF FLORIDA

GOVERNOR: The Hon. Jeff Bush

LEGISLATURE
Representative Hon Mike Fasano: District 45

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Water Facilities Regulation, Tallahasse: Dir. Van Hoofnagle
Drinking water Program, SW District, Tampa: Supervisor Gerald Foster

DEPARTMENT OF HEALTH: Secretary John O. Agwunobi

PUBLIC SERVICE COMMISSION
General Counsel: Harold McLean
Division of Consumer Affairs: Dir: Bev DeMello

OFFICE OF PUBLIC COUNSEL: Atty Steve Burgess

SWFWMD: Executive Director Sonny Vergara

PASCO COUNTY

County Commissioner: Ann Hilderbrand

ALOHA WATER UTILITIES

PRESIDENT: Stephen G. Watford

March 6, 2002

Dear Sir/Madam,

IN THE MATTER OF 'BLACK WATER'
IN THE SEVEN SPRINGS SERVICE AREA OF
ALOHA WATER UTILITIES
PASCO COUNTY, FLORIDA

During the Jan 9-11, 2002 PSC hearing on Aloha Water Utilities Docket No: 010503-WU, I presented testimony as a new customer whose domestic potable water quality is unsatisfactory because it contains a slimy black precipitate of Copper Sulphide.

Since then, I have reviewed extensively the history, the studies into copper corrosion, the deliberative records of the PUC hearings and the Utility's explanations for what has now come to be known as the 'black water' problem in the Seven Springs System of Aloha Utilities' potable water supply area. The problem seems to date back to 1990.

Customers of the Utility have repeatedly requested the intervention of regulatory agencies of the State of Florida to investigate and have this problem remedied. On every occasion that a hearing has been undertaken by the PSC since 1990, the finding has been that the quality of the water that comes out of domestic plumbing has been substandard and that the customer service provided by the Utility has been deficient in some parameters. In spite of many directives to the Aloha Utilities, it has not undertaken a scientific investigation of sufficient depth and breadth ***on site*** to understand the cause(s) of the problem ***in the specific geographical location,*** and to recommend appropriate remedies, except to propose consideration of expensive replacement of copper pipes with PVC pipes. The Utility added an anticorrosive agent to the distributed water in 1997, but no assessment of the continued efficacy of that intervention has been made.

In view of the persistence of the problem for over a decade, it might have been expected that the regulatory agencies would undertake or mandate a ***thorough and sustained scientific investigation on site instead of accepting anecdotal statements from the customers who may exaggerate the problem or from the Utility that has understated the extent and intensity of the problem and offered unsubstantiated hypotheses as 'scientific evidence'.*** Evaluation of the record does not allow me to draw the conclusion that the regulatory agencies of the State of Florida have taken such an initiative in this regard. Apparently they have not found a legislative statute, which authorizes them to do so and seem to have succumbed to the legal

maneuvering of the Utilities to avoid any such investigation or even prevent the inclusion of all available data about the quality of water during public hearings. However, a number of regulatory agencies did participate in an Interagency Copper Pipe Corrosion Project initiated by the PSC, whose final report was submitted in May 2001. Important as this project was, no specific corrective action has been mandated so far.

In the meanwhile, the opposing camps, namely the Utility and the customers, have put forward exclusive and opposing hypotheses, in the ***legalistic but nonscientific*** debate often heard at hearings. Over the years, each camp has entrenched itself into petrified positions and now it has become almost impossible for either to move towards an ***on site independent scientific enquiry*** which alone can find the true answer(s) as to what causes 'black water' in a significant number of homes and businesses in the Seven Springs Area. Only such an inquiry free of conflict of interest can suggest effective, practical and economic remedies.

The repetitive public hearings, *without a well-designed scientific investigation* ***on site*** and efficient intervention in the form of mandated remedies have unfortunately resulted in polarization of the provider-customer relations between the Utilities and the citizens of the Seven Springs Service Area. The use of legal maneuvers to prevent the disclosure of possible inadequacies of Aloha Utilities' water processing plant and procedures has created distrust between customers and the company. In the face of inaction by the Utilities and mandates by the regulatory agencies to solve the problem or *at least provide adequately researched scientific proof, instead of hypotheses, of the relevant causes for the formation of 'black water'* ***in this area***, a sense of frustration has emerged in the minds of Aloha's customer base. This manifests in the form of hostile presentations during PSC hearings. As *captive* water customers of Aloha Utilities, *which is a monopoly*, many of the Seven Springs area citizens at the present time exhibit a psychological state similar to that of hostages who have been kidnapped by terrorists.

My attempts to get help and information from Aloha Utilities to initiate an objective scientific approach have been frustrated by unreturned telephone calls, non-response to written enquiries and an attitude that verges on stonewalling. There has been a lack of transparency on the part of Aloha Utilities when questions are raised about the methodology of its water processing, or the adequacy of its processing plant. It also does not answer questions about why there is a need for wasteful flushing of hydrants on an *almost daily basis amounting to thousands of gallons*. This must result in loss of enormous quantities of water while customers are repeatedly requested by the utility itself to save water.

My own research into 'black water' raises the probability that there may be more than one *'efficient cause'* for the problem. Inadequate processing of the water to completely remove sulphide radicals from the water before distribution may be as important a factor as the presumed, but unproven presence of sulphate reducing bacteria

in the domestic system, a hypothesis advanced by Aloha Utilities, ***but which has not been scientifically documented as relevant in the geographical area under consideration.*** Thus at best, both the Utility and the customers may only be partially correct in their assumptions about the cause of 'black water' and a combination of both factors may play a determining role.

It is reasonable and legitimate for customers to assume that any Utility has a legal responsibility associated with the ***monopoly*** status granted to it by the State of Florida to provide its customers with water that has a quality that ***must*** be comparable to that accepted as appropriate by other Utilities in the neighborhood. *I presume this responsibility has to be enforced by regulatory agencies of the State when it is not accepted as a norm by any Utility and in this instance by Aloha Utilities.* By adopting the more exacting methods of water processing accepted by the Utilities in the nearby areas (such as Pasco County and Pinellas County) to deal with the instances of 'black water' and pipe corrosion that they experienced, the water supplied by Aloha Utilities can also be made free of significant corrosiveness and thus reduce the intensity of the formation of Copper Sulphide in domestic plumbing. However, Aloha has been unwilling to do so without being mandated by regulatory agencies.

Therefore, on behalf of the citizens of the Seven Springs Area the regulatory agencies of the State of Florida as well as the Legislative and Executive branches of its government *must* accept the responsibility to bring closure to this situation by ordering an ***impartial on site scientific enquiry into the problem of 'black water'*** *especially since available effective remedies have not been instituted.* If such action is not taken the issue has the potential to become a crisis with psychological, financial, health and even legal consequences that will spill over into the national arena through the media. Such an outcome has also the ability to create serious damage to the reputations of the State of Florida, and the Pasco County about their willingness to ensure fairness to their citizens and demand *accountability from private enterprises that have the privileged position of being a monopoly.* The events known as the ***Walkerton Tragedy*** in Ontario, Canada should serve as a warning to regulatory governmental agencies about the consequences of lack of due diligence and of tardiness in solving the problems faced by citizens. As a physician, ***I am especially concerned because of the possible health consequences that can be associated with skin contact and ingestion of Copper Sulphide, which is not a benign chemical (see enclosed MSDS).***

I look forward to a positive response to this appeal for ***scientific objectivity*** by an exercise of ***executive authority*** from all the regulatory and governmental agencies. I am working with customer representatives to educate them about the need for a scientifically valid approach instead of emotionally charged complaints in solving the issue and to accept as final the result of an *impartial* enquiry. I am also in the process of helping them to accept the fact that an effective solution can be instituted only with the acceptance of an increased cost for corrosion free water to the level charged by nearby utilities.

I hope that the regulatory agencies and the individuals in charge of them to whom this letter is addressed will take appropriate actions to assure a resolution of this matter without delay and before it becomes a more profound crisis.

In the spirit of co-operation,
Yours sincerely,

V. Abrahamkurien

V. Abraham Kurien, M.D.

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

April 26, 2002

To: See Distribution List

Dear Interested Parties:

On March 25, 2002 the Florida Department of Environmental Protection conducted a field sampling program of thirty homes in the Wyndgate subdivision of the Aloha Utilities service area. Our technical service contractors, the Florida Rural Water Association, took samples at the outside faucets (prior to entry into the homes) and, using field test kits, tested for sulfides, chlorine residual, and pH (fourteen houses only). The results of the sampling are attached. No testing was done inside the homes or at any home POE treatment units. We have reviewed these results and make the following three observations:

(1) Sulfides levels averaged 0.01 mg/L. Sampling done inside of homes in Aloha's service area back in 1998 and 1999 consistently indicated 1.25 mg/L to 3.9 mg/L at the inside homes' hot and cold water taps. Given the extremely low levels found outside of homes this year we must conclude that over 99% of sulfides are being generated within the plumbing of the homes themselves.

(2) pH levels during the March 2002 sampling event were relatively low. We are requesting that our Tampa DEP District Office take additional distribution pH samples during the April to June calendar quarter at this and other Aloha service areas to verify whether low pH levels are found. The approved Lead and Copper optimization report specifies that pH levels should be maintained between 7.0 to 8.5 units in order to ensure the utility's lead and copper treatment prevent as much corrosion as possible. This follow-up sampling is also to verify that the utility is adhering to the pH regulatory range levels established in the Water Quality Section of their approval of the Lead and Copper plan. Our PSC Workgroup and DEP technical experts recommend optional pH levels of 7.5 to 7.8 units be used.

(3) Chlorine residuals met the Chapter 62-555 requirement to maintain a 0.2 mg/L chlorine residual throughout the system. Please note that three samples were invalidated due to problems noted in the "comments" column of the attached results.

After the next set of quarterly pH samples are reviewed, the Department will discuss the need to revisit the Lead and Copper program requirements and whether new water quality parameters need to be established and/or pH adjustment of Aloha's source water should be implemented.

If you have any questions or concerns, please call me at 487-1762.

Sincerely,

Van R. Hoofnagle

Van Hoofnagle, Administrator
Florida Drinking Water Program
Florida Department of Environmental Protection

VH/bwfr/rm

Enclosure

Distribution List: Gary Williams - FRWA
John Williams – PSC
Steve Watford – Aloha Utilities
David Porter – Aloha Utilities
Richard Drew – DEP
Gerald Foster – DEP
Dr. Abraham Kurien

Wyndgate Sampling Project/ Department of Environmental Protection/Florida Rural Water Assoc. 3/25/02 Collected By Forrest K. Felton and Tom Gustafson FRWA Staff							
Date	**Time**	**Location**	**SO2**	**CL2**	**PH**	**Comments**	**Sampler**
3/25	8:55	1712 Cortleigh Dr.	.02	.45			FF/TG
3/25	9:00	1707 Cortleigh Dr.	.01	.16		Debris in CL2 sample	FF/TG
3/25	9:07	1653 Cortleigh Dr.	.01	.53			FF/TG
3/25	9:12	1637 Cortleigh Dr.	.01	.67			FF/TG
3/25	9:21	1521 Orchardgrove	.00	.64			FF/TG
3/25	9:27	1541 Orchardgrove	.01	.05		Out of Garage Flushed 1 min.	FF/TG
3/25	9:33	1551 Orchardgrove	.00	.52			FF/TG
3/25	9:37	1603 Orchardgrove	.01	.71			FF/TG
3/25	9:46	1628 Orchardgrove	.01	1.06			FF/TG
3/25	9:56	1704 Orchardgrove	.01	.99			FF/TG
3/25	10:02	1752 Orchardgrove	.04	1.16			FF/TG
3/25	10:11	7709 Craighurst Lp	.02	.21			FF/TG
3/25	10:13	7712 Craighurst Lp	.01	.64			FF/TG
3/25	10:21	7725 Craighurst Lp	.00	.59			FF/TG
3/25	10:24	7728 Craighurst Lp	.00	.82			FF/TG
3/25	10:31	7812 Craighurst Lp	.02	.61	6.9		FF/TG
3/25	10:34	7824 Craighurst Lp	.01	.02	6.8	Residents not home Flushed	FF/TG
3/25	10:50	1612 Boswell Ln	.00	.56	6.9		FF/TG
3/25	10:55	1550 Boswell Ln	.01	.38	6.9		FF/TG
3/25	11:02	1537 Boswell Ln	.00	.66	6.9		FF/TG
3/25	11:15	1728 Orchardgrove	.00	.73	6.9		FF/TG
3/25	11:17	1732 Orchardgrove	.02	.62	6.9		FF/TG
3/25	11:23	1752 Orchardgrove	.04	.94	6.9		FF/TG
3/25	11:27	1808 Orchardgrove	.03	.84	6.9		FF/TG
3/25	11:37	1822 Orchardgrove	.00	.62	6.9		FF/TG
3/25	11:39	1826 Orchardgrove	.00	.71	6.9		FF/TG
3/25	11:55	1606 Cortleigh Dr.	.00	.57	6.9		FF/TG
3/25	11:57	1615 Cortleigh Dr.	.00	.37	6.8		FF/TG
3/25	12:00	1610 Cortleigh Dr.	.00	.65	6.9		FF/TG
3/25	12:05	1627 Cortleigh Dr.	.01	.83	6.9		FF/TG

A Sulfide.

Q Sulfide, okay. Please describe your understanding of the reaction which results in the formation of copper sulfide.

A I would love to. In order to do that I think I need to start at the very beginning, because it's parts of the -- in order to make the whole process understandable, I think I need to start at the very beginning.

First of all, let me say that copper sulfide does not exist anywhere in our -- when I say "our" I'm referring to Aloha Utilities -- in the Aloha Utilities distribution system whatsoever. Does not. Nowhere. The copper sulfide only appears in a very small area in a very small number of homes relative to the 10,000 customers that we have in the Seven Springs service area. And it's on an intermittent basis on those that do experience the problem.

As a number of the people testified that came to speak to the last hearing, they have it one day, some don't see it again for quite some time. Some report that they see it frequently.

Two neighbors side by side, one can see the problem, the other does not. And it happens frequently that way. If you go up and down any

particular street, two people have, four don't, one does, two don't, and there's a reason for that. The way the hydrogen sulfide and copper form --

Q Hydrogen?

A Hydrogen sulfide and copper form together to create a copper sulfide is relatively complex and has a number of variables.

First of all, let me say at the beginning, you have to have both things. You have to have a source of sulfide, and you have to have a source of copper. If you don't have the two, you can't make copper sulfide.

The copper does not exist anywhere in our distribution system. And our water has been tested at the well sites. It's been tested at the meters at the home sites. It does not exist. Again, it only exists in the homes. And, again, not of every one, but of a small number.

So where does it is come from? Well, when you put water through copper piping, water being the universal solvent, some of the copper is going to bleach into the water. The rate at which it bleaches into the water is dependent upon a large number of variables. Some of those variables are the temperature at which the water is -- obviously, hot

water bleaches copper much quicker than cold water.

The second thing is the aggressiveness of the water. How corrosive, maybe is another word, or aggressive the water itself is. The time that the water actually sits in the water -- or sits in the pipeline before it's used. So how long it's actually stagnant in the pipe, how much oxygen is in the water, a host of other variables, the pH, you know, the relative acidity and alkalinity. There's a number of things that control the generation of the copper concentration in the water.

One of the main things that create a problem with water carrying copper in the homes is whether the home has home treatment for the water system. Those homes that have a whole house treatment system of any sort, whether it be a straight softening unit or any of the more exotic home treatment systems, the ion exchange or the reverse osmosis systems and so forth. What that essentially does is make the water very corrosive. And it's designed to do that. What it's designed to do is take out those things that people find objectionable, minerals and so forth. Well, it's those very minerals that prevent the copper piping from dissolving at a faster rate, because it coats the copper itself.

When you have a home treatment system, it creates a very aggressive water. And again, what happens is you'll get water that's very, very pure; but water wants to dissolve things so that the concentration of whatever it's in becomes the same concentration of whatever that stuff is in the water. It wants to come into equilibrium. So it dissolves it at a much faster rate.

So those homes that have a home treatment system far exceed -- or have a far greater likelihood of having this copper sulfide problem because of the generation of the copper in the water than others do. That's been borne out recently. I'll mention it; Mr. Watford can elaborate on it. But Mr. Watford's staff has gone out to, I believe, every customer that had spoken during this hearing; checked the water at the beginning or where it comes into their home, every single one, and with no exceptions found the water to be exactly what it's supposed to be. We have no copper sulfide, no black, no smelly water, no nothing. Checked a number of the homes. And I guess in the vast majority found that the vast majority of those customers had home treatment systems.

And I believe in six of them, they tried an experiment. They turned the home treatment system off

for a period of time. And from my understanding, is -- again, Mr. Watford is giving this secondhand. Please ask Mr. Watford, also -- three of the systems -- or actually all six of the systems showed a marked improvement to the point where there was either no problem or a very, very slight problem.

Three of them, I guess, from what I understand, remain to this day to be off. They've kept the systems off. Three of them decided they wanted the soft water more than they wanted to solve the problem and put their home treatment systems back on. But I understand, at least to this point, which it just recently happened, there isn't a problem at their house. I believe there will be. I think it will come back. But at least at this point it's not a problem. So that's one source of the problem, is the aggressiveness of the water, it's how much copper goes into the water, it's the temperature of the water, and it's, again, how long it sits there.

So in those folks that have very little water use, like older folks that don't use the back bedroom rarely, and somebody come to stay for a week, and they haven't used it in three weeks, and they turn it on, and they get the big shot of black stuff, which a number of the people, that's exactly what they

describe. Again, the reason for that was there was a long period of time that the water sat in the pipeline, was able to gather up quite a bit of copper and mix with the sulfide, which I'll talk about next. And then they had copper sulfide. So that's a problem there. So that takes care of one of the reactants. That's where the copper comes from.

Now, the sulfide side, where does that come from? It has to come from somewhere. Well, there is hydrogen sulfide in most Florida waters. And Aloha Utilities is no exception. We do have hydrogen sulfide at the wells in a number of our well sites. However, we convert that. We add chlorine in high enough concentrations so that we oxidize the hydrogen sulfide to form a different type of sulfur. We form a sulfate or an elemental sulfur. Neither one of those two things, sulfate or sulfur, can mix with copper to give you the black copper sulfide. They cannot do it. They're just not the right chemical. It's like trying to mix two things that won't mix.

So somehow that sulfur then that's been converted from a sulfide back to a sulfate or a sulfur needs to be converted back somewhere between the wells and the people's homesites. We regularly check the water, and I guess Mr. Watford's staff has been out

pretty extensively lately checking the water as it goes into the homes to see if there's a sulfide. There is none. There is sulfate. There is no sulfide, which is what we would expect. So, therefore, the sulfide is generated in the homes.

How does that happen? Well's there's two ways. Well, there's one way, but it occurs under two different mechanisms. Somehow the sulfate and the sulfur has to be converted back to a sulfide. That's done by a microorganism. That microorganisms or those microorganisms are called sulfur reducing bacteria. They're very common. They're in every bit of water around, but they are usually in very low concentrations. There's not enough of them to make this reaction happen quick enough to get enough sulfide going to cause a problem.

However, if you have two situations -- if one of the two situations I'm going to describe occur, you could get quite a bit of sulfide. One of those situations is, the easy one, folks again are using very little hot water in their home, so you have this big reservoir of hot water which is exactly where the sulfur reducing bacterial want to live. They like it at about 100 to 120 degrees, or a little bit more. And they can acclimate up to about 140 degree

temperature. And they like it very much.

So if you allow the water to sit there for a very long period of time and don't use much hot water, which is the case with a lot of people in that area that we are talking about, then what you can have is the sulfur reducing bacteria levels raising to the point where the water comes in with sulfate and sulfur and is converted to sulfide. That's why you heard a lot of the people saying, Well, I've been out there when Aloha has been there, and the water looks great when it comes into the house and it doesn't smell bad. But, damn, when I get it, my hot water, and I turn the tap on, I get that stinky stuff and it's black. Well, that's why; because the sulfur reducing bacteria in their hot water tank and in their piping, because it lays in the pipelines as well, because of the length of time that the water remains in the system is long enough to let that sulfide be generated. So in that case you have the sulfur and you have the -- your sulfide, I mean. And you have the copper. You put those two together, you get the black stuff.

The biggest problem I think that we are seeing is again those home treatment systems. If you remember the advertisements that you see for the home treatment systems everywhere you go, what's one of the

things they always tell you? That you can take care of that nasty chlorine taste. We can remove that nasty chlorine taste, and you won't have that anymore.

Well, that's exactly what it's doing. It's taking the chlorine, which is put there for a purpose. Its purpose is to kill disease causing organisms in the water, but also to control nuisance type organisms, like sulfur reducing bacteria. So what happens is the water comes into these folks' home and it's got chlorine levels of between .2 and greater, usually quite a bit greater, milligrams per liter of chlorine in it, which would be enough to control the population of the sulfur reducing bacteria, but they have this wonderful home water treatment system that removes the chlorine.

So now what you have is a situation where there's no chlorine any longer to control the concentration of sulfur reducing bacteria. And those sulfur reducing bacteria do a number of pretty nasty things. The first thing they do is they convert the sulphates and the sulfur to sulfides which contributes to the odor they are talking about. It contributes to the generation of copper sulfide. But more importantly, I think, because the others are aesthetic, it contributes to the fact that a lot of

their piping systems are being attacked and corroded at a rapid rate because these sulfur reducing bacteria will get up underneath sediments that are actually attached to the wall of the copper. And when that happens, the reaction takes place right there. It's a reduction reaction. There has to be a corresponding oxidation reaction to let that happen. What happens is the copper is oxidized. So what happens eventually is people are going to find pretty large numbers of pinholes in their piping.

I'm sure all of you who have lived in Florida for a number of years have heard of a situation like that where people had to go back and repipe their house because it had a lot of pinholes. It happened in Orlando, it happened to my house in Orlando. And where you normally see that the most is where there's a lot of sulfur reducing bacteria active because they get up and create a problem right at that point at which they are connected to the copper piping underneath the piece of sediment.

So those home treatment systems then are doing a number of things that are very serious. One thing is it's removing the chlorine, so it's essentially assisting the sulfur reducing bacteria in creating a lot of hydrogen sulfide in the system which

is one of the reactants. It's making the water very aggressive so that the copper concentrations in those homes are very high, and it's usually in the hot water side.

So what do you have? You have temperature which is elevated, which makes the reaction go faster. You have a lot of copper, and you have a lot of hydrogen sulfide. You put those three things together in a home where the water isn't used very much, and those are the homes which see the biggest problem with copper sulfide being generated in the home. That also explains why this guy has it and this guy doesn't on the street, because those conditions don't all exist in that guy's home, but they do in this guy's home.

You know, we've done quite a bit of looking at this, and we are still continuing to. And I get in -- and I think in an unprecedented manner by DEP, they have been working with us extensively on this project, which is the first time in my experience, and I've been working in this industry for over 25 years, that I've ever seen a regulatory agency go to the extent the DEP has to help this situation and expend the resources and the personnel to do so. So it's been looked at very extensively. I'm confident that those are the mechanisms that are taking place.

So what are we doing to try to help that situation? You can either get rid of copper or you can get rid of the sulfide. You've got to get rid of one of the two to prevent the copper sulfide from continuing to be formed.

Well, you really can't remove the problem with the sulfur. The way our system is configured with the number of wells that we have today, in order to provide sulfur control at all of our wells, would have been a very long-term solution that would have taken a very long time to accomplish and it would have been very, very, very expensive.

The other solution, which is equally good if it's implemented, and that's what we chose to do, was to use a corrosion inhibitor which is to keep the level of the copper down. So if we keep the copper out of the solution, even if the sulfide is still present, you can't have copper sulfide. So we tried to do that, and that's what we are in the process of implementing.

However, what we've recently found, and it's been documented by the manufacturer of the corrosion inhibitor chemical that we are using, again, the home treatment systems are a problem because the home treatment systems remove the inhibitor prior to it

entering the home. So not only is it contributing to the formation of the problem, but it prevents the very substance that we add to control that generation of copper, it removes it. It won't allow it to get through the system.

So now these people are still screaming, "Jeez, it's not working at my house." And in some cases that's what's happening. Well, those are the ones mainly with the home treatment systems. If you can't get the chemical into the system, then you can't provide corrosion control.

Another problem with that is, again, the thing we talked about earlier. The purpose for the home treatment system is to take away all the minerals, as many as they possibly can. In order for this inhibitor to work, the inhibitor chemical has to mix with the minerals in the water that's naturally there, and it forms a barrier layer on the pipe. If those minerals don't exist or if the chemical can't get in the system or both, you can't have a barrier level, so we can't control the problem.

You know, I've heard it said here by a number of customers, and I've heard it said by a number of witnesses, that Aloha is doing nothing to solve this problem. I can assure you that's not

correct.

Aloha, as soon as we became aware of this problem back in January of '96, this year, to any great extent, before it was hit or miss, one or two here and there, contacted me and asked me to work on the project. I am a consultant to Aloha. I'm not an employee. I've been working on this project now since that time. Not only have I been working on the project, the DEP has been working extensively on this project. We've contacted many other parties. We've worked with laboratories, chemical suppliers, people recommended by the DEP, their own laboratory, a number of their staff. We've met with customers.

I personally have gone out to customer sites, I can't count the number of times. I've spent just enormous number of hours on the telephone with individual customers trying to explain to them what's going on. I've attended public meetings with the DEP, I have, large public meetings where we've discussed this issue, presented exactly what we are telling you here. We've prepared newsletters. We've done everything humanly possible to try to solve this problem.

I really believe in my own heart that if there was not a rate case going on here, this would be

a typical problem that I've faced many times in my life as a consultant in this area, and we'd be long toward our way of solving it. And that's what we'd be talking about right now, solving the problem. That is why I believe DEP has made the assertions they have that says we are doing everything we can. I believe that's why the head of this office of the DEP further stated that.

I don't know what else to tell you. We are doing everything humanly possible. I believe we are on the road to solving the problem. I believe we have got a serious problem with the folks that have home treatment systems. And I believe and, ultimately, the only real solution for them is going to be to have to adjust the way they are operating their home treatment systems or remove them completely. Because the water, as we produce it, meets all state and federal standards and is good quality water, there's really no reason for those home treatments systems other than that's what they choose to have. You didn't know what you were going to get into when you asked that question, did you?

CHAIRMAN CLARK: Mr. Porter, let me ask you question.

WITNESS PORTER: Yes, ma'am.

Monthly Operation Report for Public Water Systems that Use Ground Water and for Consecutive Public Water Systems that Treat Their Water

System PWS Identification Number: 6512214

Treatment Plant Name: Seven Springs Well #9

III. SUMMARY OF DAILY WATER TREATMENT DATA FOR THE MONTH/YEAR OF May 1999

- Type of Residual Disinfectant Maintained in Distribution System Served by Plant: ☒ free chlorine; ☐ combined chlorine (chloramine); ☐ chlorine dioxide
- Summary of Daily Water Treatment Data for Month:

Day of the Month	Hours Plant In Operation	Quantity of Finished Water Produced by Plant (gallons)	Lowest Residual Disinfectant Concentration at Entry to Distribution System (mg/L)	Residual Disinfectant in Distribution System: Lowest Residual Disinfectant Concentration at Remote Point (mg/L)	Number of Instances Where Residual Disinfectant Measurements Taken at Total Coliform Sampling Points	Lowest Residual Disinfectant Concentration at Total Coliform Sampling Points (mg/L)	Reported Emergency or Abnormal Operating Conditions
1	24	191000	2.1	0.8			
2		416000	3.0				
3		494000	2.5				
4		450000	2.5				
5		592000	2.5		20*	0.8*	
6		343000	2.5				
7		263000	2.8				
8		270000	2.5				
9		270000	2.5				
10		472000	1.7				
11		353000	2.6				
12		633000	2.6				
13		576000	3.0				
14		484000	3.0				
15		494000	1.5				
16		791000	3.5				
17		752000	3.5				
18		523000	3.5				
19		519000	1.6				
20		347000	1.5				
21		24000	1.5				
22		208000	2.5				
23		365000	2.5				
24		298000	1.7				
25		285000	0.5				
26		372000	1.8				
27		244000	1.7				
28		211000	1.7				
29		442000	1.5				
30		481000	2.5				
31	↓	64000	2.2	↓			
Total		12279000			20*		
Avg.		3960916					
Max.		791000					

mandatory max ? max calculation: 500 x 1440

Monthly Operation Report for Public Water Systems that Use Ground Water and for Consecutive Public Water Systems that Treat Their Water

System PWS Identification Number: 6512214

Treatment Plant Name: Seven Springs Well #9

III. SUMMARY OF DAILY WATER TREATMENT DATA FOR THE MONTH/YEAR OF December 1999

- Type of Residual Disinfectant Maintained in Distribution System Served by Plant: ☒ free chlorine; ☐ combined chlorine (chloramine); ☐ chlorine dioxide
- Summary of Daily Water Treatment Data for Month:

Day of the Month	Hours Plant in Operation	Quantity of Finished Water Produced by Plant (gallons)	Lowest Residual Disinfectant Concentration at Entry to Distribution System (mg/L)	Residual Disinfectant in Distribution System			Reported Emergency Abnormal Operating Conditions
				Lowest Residual Disinfectant Concentration at Remote Point (mg/L)	Number of Instances Where Residual Disinfectant Measurements Taken at Total Coliform Sampling Points	Lowest Residual Disinfectant Concentration at Total Coliform Sampling Points (mg/L)	
1	24	537000	3.0	0.7			
2		312000	2.5	0.5			
3		34000	2.3	0.5			
4		259000	2.4	0.8			
5		355000	2.0	0.8			
6		309000	1.5	0.5			
7		270000	3.0	0.7			
8		436000	2.0		20*	0.9*	
9		392000	3.0				
10		314000	2.6				
11		302000	2.4				
12		496000	2.5				
13		516000	2.3				
14		304000	2.8				
15		459000	3.3				
16		351000	3.0				
17		282000	3.0				
18		0	2.6				
19			2.7	↓			
20			2.5	0.5			
21			2.8	0.7			
22			2.3				
23			2.5				
24			2.8				
25			2.7				
26			2.5				
27			2.8				
28			3.0				
29			2.3	↓			
30			2.5	0.5			
31	↓	↓	2.1	0.5			
Total		5944000			20*		
Avg.		193354					
Max.		516000					

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

October 28, 2002

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue
New Port Richey, Fl. 34655

Re: pH and Free Chlorine Measurements from Aloha Utilities

Dear Dr. Kurien:

The information you requested is attached. Please feel free to contact me should you have any questions.

Sincerely,

Gerald B. Foster
Environmental Specialist III
Drinking Water Section

GF

Enclosure

Tests usually done between
10 AM and 4 PM

2027/24 0.84

August 2002 pH and Residual Chlorine Readings

LOCATION	pH (LaMotte)	pH (Cole-Parmer)	Residual Chlorine
5/30			
4890 Portland Manor			1.86
Heritage Lakes Clubhouse			0.24
1241 Hagen Dr.			1.02
1212 O Mera Ct.			0.76
7413 Rawson Dr.			0.40
7052 Fallbrook Ct.			0.58
Country Place (Shuffle Boards)			1.11
8/16			
Country Place (shuffle board area)	7.1	7.05	0.84
Heritage Lakes (4754 Bellemede)	7.1	7.09	1.85
Heritage Lakes Club House	6.9	7.09	.25
Veterans Villas (2936 Bradley Ct.)	7.1	7.06	0.86
Trinity (1241 Hagen)	7.0	7.07	0.31
8/21			
Millpond Est. Clubhouse	7.3	7.21	0.63
Wyntree (7052 Fallbrook Ct.)	7.1	7.03	-
Trinity Oaks (8238 Danibian)	7.1	-	0.21
Trinity Oaks (8431 Kinsmere)	-	7.16	1.36
Fox Hollow (2104 Larchwood)	7.0	7.04	0.72
9/13			
Country Place (shuffle board area)	7.5		1.58
Millpond Est. Clubhouse	7.4		0.49
Wyntree (7611 Albacore)	7.3		1.84
Wyntree (7420 Cheltnan)	7.4		0.25
Trinity (9514 Venturi Dr.	7.3		0.22
Trinity Cameron's Pointe (2105 Hammock Pk. Ct.)	7.5		0.36
Heritage Lakes (4546 Tiburon)	7.4		1.56
Heritage Lakes (4709 Sandpointe)	7.5		0.97

Interoffice Memo

Date: 11/18/2002

To: Deborah A. Getzoff, Dir. of District Management

Through: Jeff Greenwell, PE

From: Gerald B. Foster, Peter Screnock

Re: Free Chlorine Residual Test Results

As agreed during a September 19, 2002 meeting held at Rep. Fasano's office, free chlorine residual testing of the drinking water in the Seven Springs service area of Aloha Utilities was completed on November 4, 2002. A total of 16 sites were sampled between 6:30 AM and 9:20 AM. A table is attached showing locations, flush time, and sample results.

No contact occurred between the Department and the utility regarding this sampling event. Dr. Kurien provided the list of sites tested to the Department. The Department's Drinking Water staff developed a sampling procedure that would address the questions voiced by Dr. Kurien and other concerned residents at the September 19, 2002 meeting. Each resident was asked if their home was equipped with a Point of Entry water treatment device (ie, softener, iron filter system). In order to obtain a representative sample of water supplied by the utility, the water service line was flushed based on the distance from the meter to the residence. Basic flow dynamics called for a flush time of 10 seconds for every 20 feet of ¾ inch pipe. Immediately after flushing a free chlorine residual was measured.

The Orion AQUAfast II, which is a factory calibrated meter, was used to measure the free chlorine residual. This meter can measure chlorine in drinking water in the range of 0.05 – 6.0 mg/l.

Dr. Kurien met up with Department inspector, Peter Screnock, at the second sample site. The majority of sample sites were in cul-de-sacs. Department inspector witnessed no flushing by the utility during the course of this sampling event. All homes tested had Point of Entry devices. No residual was found below the Florida Administrative Code Rule requirement of 0.2 mg/l. The results ranged from 0.59 mg/l to 3.31 mg/l.

GBF

Enclosure

Map	Name	Address	Subdivision	Phone	Time	POE	Feet	Flush	Residual
7	Charles Hise	Jutland Dr 1533	Trinity	727-372-1707	6:30 a.m.	Y	58	28 sec	0.59
13	Bill Crean	Glengary Pl 8440	Trinity		6:44 a.m.	Y	65	32 sec	1.71
12	Ray Flanders	Farmingdale Lane 1065	Wyndtree	727-376-0586	7:00 a.m.	Y	26	23 sec	3.31
11	Bob McCloskey	Falbrook Ct 7136	Wyndtree	727-375-7225	7:12 a.m.	Y	24	13 sec	2.59
16	Phil Hunter	Northhaven Place 7716	Wyndtree		7:27 a.m.	Y	50	25 sec	2.56
15	Dart Purdy	Northhaven Place 7711	Wyndtree		7:30 a.m.	Y	40	20 sec	2.29
3	Eugene Hand	Callaway Dr 9033	Trinity	727-375-5819	7:44 a.m.	Y	29	15 sec	2.27
6	Tom Hargreaves	Hagen Dr 1009	Trinity	727-376-1633	7:52 a.m.	Y	51	25 sec	1.58
5	Robert Corkum	Hagen Dr 1005	Trinity	727-376-1633	7:58 a.m.	Y	64	31 sec	1.34
14	Dr. & Mrs. Youpa	Hagen Dr 1042	Trinity		8:06 a.m.	Y	73	36 sec	1.48
1	Diane Kocienda	Broadleaf Ct 1728	Trinity	727-372-2153	8:27 a.m.	Y	80	40 sec	2.21
10	Len Hair	Venturi Dr 9632	Trinity	727-372-9774	8:27 a.m.	Y	69	33 sec	1.55
2	Patric Phelan	Broadleaf Ct 1803	Trinity	727-372-5027	8:36 a.m.	Y	37	19 sec	2.97
8	William Humphrey	Larchwood Ct 2120	Trinity	727-372-9119	8:45 a.m.	Y	62	31 sec	1.71
9	David Rowan	Tacoma Dr 10338	Trinity	727-375-7579	9:00 a.m.	Y	55	28 sec	1.54
4	Dave Geiger	Edelweiss Loop 2245	Trinity	727-372-1847	9:19 a.m.	Y	27	13 sec	1.63

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue,
NEW PORT RICHEY, FL 34655
727 376-9747

Ms Deborah Getzoff,
Director of district Management
FDEP, SOUTHWEST DISTRICT
3804 Coconut Palm Drive,
TAMPA, FL 33619-8318

January 2, 2003

Dear Ms Getzoff,

On December 24, I received a copy of an Interoffice Memo to you from Mr Gerald Foster dated 11/18/02 along with the data of 16 free chlorine residual tests performed on November 4, 2002.

I would like to take this opportunity to thank your office for undertaking these tests. I would have preferred to receive the results earlier than almost 50 days after the tests were done. I presume these results have been given to Aloha Utilities also.

I am not surprised by the very high concentrations of chlorine residuals reported in these tests, because a very intense smell of chlorine was noted at the time the tests were done. Of more immediate concern to me is the explanation for the statistical distribution of the concentrations reported when compared with previous tests.

> *6% of the values were below 1.0mg/l : **12%** between 1.0-1.5mg/l : **37%** between 1.5-2.0mg/l and **18%** between 2.0-2.5mg/ and **18%** 2.5 –3.0mg/l and 6% above 3mg/l, with **an average value of 1.958 mg/l***

Another set of 24 tests done by your office between May and September of 2002 (copy attached) showed the following distribution:

> ***66.6%** the values were below 1.0 mg/l; **12.5%** between 1.0-1.5 mg/l; **20.9%** between 1.5-2.0mg/l, **with an average value of 0.84mg/l***

The values obtained during the test run on November 4 are **233%** higher compared to the previous tests require an explanation. Almost 80% of values measured on November 4 were **higher** than 1.5 mg/l where as 80% of earlier values were **lower** than 1.5mg%. ***There was a very significant upward shift of free chlorine residuals when the values would have been expected to be lower on a Monday morning before the flushing procedures had started.*** The difference between these two distributions of values cannot be explained by chance.

I realize that you may not have an answer that would explain this phenomenon, but I am certain that Aloha Utilities **do** have an explanation for this enormous statistical variance. I would appreciate it, if you would request such an explanation from Aloha and forward it to me as soon as you get it.

Also would you please comment on the safety of drinking water that contains free chlorine residuals as high as the values reported on November 4, 2002.

Yours sincerely,

V. Abraham Kurien

V. Abraham Kurien, M.D.

cc. State Sen. Mike Fasano
Ms Mimi Drew
Mr Van Hoofnagle

As you may remember among the 126 tests the customers conducted using pool kits, 21% showed values below 0.2mg/l; 19% showed values at the mandated level of 0.2mg/l and 60% showed values above 0.2mg/l. Only 10% showed values of 1.5 or more.

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

David B. Struhs
Secretary

January 22, 2003

V. Abraham Kurien, M.D.
1822 Orchardgrove Ave.
New Port Richey, FL 34655

Re: Free Chlorine Residual Testing

Dear Dr. Kurien:

This letter is in response to your January 2, 2003 letter requesting information on sampling results performed in November 2002 at Aloha Utilities. The free chlorine residuals found during the unannounced November 4, 2002 monitoring event in the Seven Springs service area do not appear unusual given that:

1. Aloha Utilities utilizes chlorination for the oxidation of hydrogen sulfide, which requires higher levels of free chlorine; and
2. Review of Monthly Operation Reports from May through November, 2002 identified relatively high free chlorine residuals at the water treatment plants consistent with the oxidation of hydrogen sulfide.

When evaluating the May through September 2002 monitoring events to the November 4, 2002 monitoring event the following information should be considered:

- The November 4, 2002 monitoring event was a discreet event over a four hour period minimizing the potential of variations in water quality.
- The November 4, 2002 monitoring was conducted in the early morning peak water demand hours during the dry season (increased irrigation of golf courses and lawns), minimizing the residence time of the water in the distribution piping and the potential for loss of free residual chlorine.
- The May through September 2002 monitoring events were not discreet but spread over a five month span maximizing the potential of variations in water quality.
- The May through September 2002 monitoring was conducted in the afternoon during periods of low water use and during the wet season (decreased irrigation of golf courses and lawns), thereby maximizing the residence time of the water in the distribution piping and the potential for loss of free residual chlorine.

As outlined above, the wide range of operational and environmental variables appears to make statistical comparison of the May through September 2002 monitoring events to the November 4, 2002 monitoring event difficult at best.

Regarding health effects, there is presently no maximum contaminant level for free residual chlorine. In January of 2004, a new rule applicable to Aloha Utilities will require community water systems to comply with a 4.0 mg/l maximum residual disinfectant level beginning. Compliance with this new standard will be based on a running annual average which is an average of all residual readings throughout the water system for the last year. Average residual free chlorine from May through November 2002 did not exceed the proposed limit of 4.0 mg/l.

If you should have any questions, please feel free to contact Jeff Greenwell at (813) 744-6100, extension 307.

Sincerely yours,

Deborah A. Getzoff
Director of District Management
Southwest District

DAG/jsg/s

cc: Honorable Mike Fasano
Jeff Greenwell, P.E.
Gerald Foster

MASTER'S THESIS SUBMITTED BY TROY LYN TO CENTRAL FLORIDA UNIVERSITY, 1991

(Please see Exhibit 8)

temperature. And they like it very much.

So if you allow the water to sit there for a very long period of time and don't use much hot water, which is the case with a lot of people in that area that we are talking about, then what you can have is the sulfur reducing bacteria levels raising to the point where the water comes in with sulfate and sulfur and is converted to sulfide. That's why you heard a lot of the people saying, Well, I've been out there when Aloha has been there, and the water looks great when it comes into the house and it doesn't smell bad. But, damn, when I get it, my hot water, and I turn the tap on, I get that stinky stuff and it's black. Well, that's why; because the sulfur reducing bacteria in their hot water tank and in their piping, because it lays in the pipelines as well, because of the length of time that the water remains in the system is long enough to let that sulfide be generated. So in that case you have the sulfur and you have the -- your sulfide, I mean. And you have the copper. You put those two together, you get the black stuff.

The biggest problem I think that we are seeing is again those home treatment systems. If you remember the advertisements that you see for the home treatment systems everywhere you go, what's one of the

COMPARISON OF KNOWN HYDROGEN SULFIDE LEVELS AT ALOHA WELLS[1] MAXIMUM CHLORINE DOSE AVAILABLE[2] AND THE MAXIMUM H2S CONVERTABLE TO SULFATE ASSUMING 100% OXIDATION TO SULFATE[3]

V.ABRAHAM KURIEN, M.D.

8/11/03

WELL No.	H2S LEVEL	MAX.CL2 AVAILABLE	MAX.H2S CONVERTIBLE TO SULFATE	RESERVE CAPACITY
1	0.02mg/l	8.3mg/l	1.0mg/l	4900%
2	0.68mg/l	20.8mg/l	2.5mg/l	267%
3	1.81mg/l	41.7mg/l	5.0mg/l	176%
4	0.46mg/l	41.7mg/l	5.0mg/l	986%
6	0.94mg/l	18.5mg/l	2.2mg/l	134%
7	0.01mg/l	18.5mg/l	2.2mg/l	21900%
8	1.60mg/l	25.0mg/l	3.0mg/l	87%
9	3.85mg/l	25.0mg/l	3.0mg/l	-28%

It is well documented that Aloha wells demonstrate significant fluctuations in the hydrogen sulfide present in the raw water extracted from them even during short periods of time[4]. Hence a large reserve chlorinator capacity is essential at all wells to prevent incomplete oxidation of hydrogen sulfide and the persistence of elemental sulfur in significant quantities in the processed water, along with dissolved hydrogen sulfide and HS^- ions.

What this reserve capacity should be is unknown, but with the range in hydrogen sulfide levels fluctuating as much as at least 400%[5] there should be a reserve chlorinator capacity of at least 500% at each well.

Based on these observations, Wells 2,3,6, 8 and 9 do not have adequate reserve capacity in their chlorinators.

Based on present reserve capacity of Chlorinator at well 2, there will be significant elemental colloidal sulfur in 'finished water from this well if there occurs a rise in hydrogen sulfide of 300%

Based on present reserve capacities, the 'finished water' from wells 3 and 6 will contain significant elemental colloidal sulfur if a fluctuation in hydrogen sulfide levels as little as 200 % occurs.

'Finished water' from well 8 will contain significant amounts of elemental colloidal sulfur if there is a 100% rise in hydrogen sulfide levels

'Finished Water' from well 9 will contain significant amounts of elemental colloidal sulfur whenever hydrogen sulfide level is above 3mg/l. 'Finished water' from well 9 is most likely a significant source for corrosiveness of delivered water, because elemental sulfur in its colloidal form is corrosive.

CONCLUSION:

1. AREAS RECEIVING WATER FROM WELL 9 IS AT CONSTANT RISK FOR CORROSION OF COPPER PIPES.

2. WELL 9 SHOULD BE SHUT DOWN TO REDUCE CORROSIVENESS IN THE AREAS SUPPLIED BY IT.

Foot notes:

1. Data from MIEX Report submitted by Aloha to PSC, October 18, 2002, page 6/21

2&3 Data from draft report Technical review of Production and distribution of drinking water in the Seven Springs Area; Submitted by Dr Levine July 2003, page 16

4.Data from MIEX Report submitted by Aloha to PSC about well 9, October 2002

5. Data submitted to PSC by various EPA certified Laboratories between 1998-2002

BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of DOCKET NO. 960545-WS

INVESTIGATION OF UTILITY RATES OF ALOHA UTILITIES, INC. IN PASCO COUNTY.

****
* *
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* *
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VOLUME 4

Pages 473 through 641

PROCEEDINGS: HEARING

BEFORE: COMMISSIONER SUSAN F. CLARK
COMMISSIONER E. LEON JACOBS, JR.
COMMISSIONER LILA A. JABER

DATE: Thursday, March 30, 2000

TIME: Commenced at 9:00 a.m.

PLACE: Clarion Hotel Ballroom
5316 U.S. Highway 19 North
New Port Richey, Florida

REPORTED BY: JANE FAUROT, RPR
FPSC Division of Records & Reporting
Chief, Bureau of Reporting

APPEARANCES: (As Heretofore Noted.)

DOCUMENT NUMBER-DATE
04837 APR 20

I N D E X

WITNESSES

EXHIBITS

wouldn't mind, I would like to say one thing. As a lot of the customers said yesterday, many of them complained that the problem began long before January 1996, long before those wells were put on-line. Many years before in some cases.

Q If the problem lies within the customers' pipes --

COMMISSIONER CLARK: Excuse me. When did 8 and 9 come on-line?

THE WITNESS: 1996.

MR. JAEGER: I thought you said the first complaint you had about it was in 1995. I don't describe that as years ahead of time.

THE WITNESS: Some customers yesterday reported that they started seeing the problem in the early '90s.

COMMISSIONER CLARK: But the time you became -- when I say you, I mean the company was notified of it and became aware of it was sometime in '95?

THE WITNESS: Yes, ma'am. I'm actually reporting to you what some of the customers said yesterday.

COMMISSIONER CLARK: Okay.

BY MR. FUDGE:

Q If the problem lies within the customers' pipes, then why does the problem clear up whenever the lines are

flushed?

A I don't know that to be the case. I think that we have heard from various customers that there is a very intermittent nature of the problem. It comes and goes. They said there is no rhyme or reason. It is there one day, it is not there three days. It is there one month, it's not the next month. And certainly Aloha, as you heard yesterday, flushes on a regular basis. It is conceivable that they would be out flushing and an event would occur where the people would not see it for this particular event. I think if we had asked the customers the question, "Have you ever seen the black water problem while Aloha was flushing or immediately thereafter," we might have gotten an answer of yes.

Q Some customers testified that the black water problems had some correlation to the activities of Wells 8 and 9. Do you see any correlation?

A I don't.

Q Are the water characteristics of Wells 8 and 9 different from Aloha's other wells in the Seven Springs area?

A No, they are essentially the same as the other wells. Of course, there is variability between all the wells, but they are characteristic of the wells that we have now.

Q Do you have any idea why some customers may have believed that the black water problem is somehow tied to Wells 8 and 9?

A Yes, I do. And that was an unfortunate turn of events, because what happened was when Aloha was putting those new wells on-line, largely at my request I suggested because of client or customer relations that I thought it was a good idea to notify all customers in the system, both by newspaper and by written document, that it was important to note that they may see discolored water. When we first turned on Wells 8 and 9, we actually changed the flow of water in that area. Where water had all been coming from other wells into this area, now we are putting a set of wells on that, as I mentioned before, flow not only to this area, but out to the system, as well.

So when you do that you create turbulence in the pipelines. **And when you create turbulence in the** pipelines, you invariably remove any silt that is in the system. **When you pump water out of wells, it's out of the** ground, there is always some silt and dirt that gets in the system. **That is why you flush the lines from the fire** hydrants.

And I knew from my past experience that when we put those wells on-line, we were going to have dirty water. Now there is two ways to handle that. You can

either do it and react to the complaints, and hope it goes away quickly, which I think is the wrong way to do it, or you can do what I think is correct, and that is to tell people it is coming. And say, "Let me tell you. We are starting up some new wells, they are here for your use. But in the meantime, we are going to be reversing the flow, and we are going to see some dirty water. So please call us and tell us if you see it so we can go out and flush the system."

In addition, we had people flushing the lines day and night trying to minimize that problem. **Well**, what that did is that then finely-tuned people to be looking for dirty water problems, and I guess largely at my request. **It is also no small coincidence that there was** a rate case going on at the same time.

And I think that when you put all of those things together, where you have told people they are going to expect the problem, they did get a problem, the water did get muddy and dirty and we had to flush it, and you had a rate case going with people that are unhappy about a rate increase, and I would be, too, that you end up with -- you end up with people more critical about their water than they have previously. However, I will tell you, again, that my position and that of the utility, as far as I know, is there is a reason to be critical about

hat.

COMMISSIONER JABER: Mr. Porter, it is not your testimony that people tolerated the black water until Aloha filed a rate case, correct?

THE WITNESS: Well, I can tell you that some people today tell us, or yesterday told us that they had the problem as early as 1991 and never said anything to the utility about it. So I don't know what to tell you about that.

COMMISSIONER JABER: Did Aloha file a rate case prior to 1995?

THE WITNESS: Not that I am aware of. As a matter of fact, I think that was the first one in quite some time, many years.

BY MR. FUDGE:

Q If the black water problem can be tied to Wells 8 and 9, would it be feasible to install the packed tower aeration only at this site and forgo the other installations?

A Yes. I mean -- but, you have to understand that, first of all, there is no case that is the case. And, secondly, if you were to install treatment at one system, given the fact that the entire system is intermixed, that all you are really going to do is put some water that has been treated in with water -- that

that doesn't necessarily mean that you are going to get the higher quality water only at Wyndtree and Chelsea and whatever, you are going to get intermixed water. And the wells in our other areas are so similar to the water at Wells 8 and 9, I can't imagine why that would have any effect. That is my answer.

Q I don't see in any of your exhibits a diagram of the wells and the subdivisions. It doesn't have the subdivisions labeled. Can we get that as a late-filed exhibit?

A I think we can give you a map that shows the subdivisions. I don't know if we have got an overall system map in one location of all of the water system. I think we can show you a system map, it shows the subdivisions and where the wells are.

Q All we want is the wells and the subdivisions.

A Let me take a look. I'm not sure that that isn't in here. This was a long time ago. It is in here, you have that. Let me rephrase that. You don't have the names of the subdivisions on it. So you want us to add subdivision names?

Q Yes, please.

A We can do that.

Q Does Aloha have --

COMMISSIONER CLARK: Mr. Fudge, let's get a

number. We will make that Exhibit 14. And are we going to -- what are we going to title it?

THE WITNESS: System map with names of subdivisions.

MR. JAEGER: And well numbers.

THE WITNESS: They are already on here.

COMMISSIONER CLARK: All right. That will be Exhibit 14.

(Late-Filed Exhibit 14 identified.)

COMMISSIONER CLARK: Okay.

BY MR. FUDGE:

Q Does Aloha have backflow prevention devices installed in their system?

A For those customers that require it, yes.

Q Do you know how frequently they are installed and who gets them?

A I'm sorry, repeat that, please.

Q Do you know how frequently the backflow prevention devices are installed?

A Are installed?

Q Yes.

A Only when a customer comes in and require -- where it is required that he provide one.

COMMISSIONER CLARK: Under what circumstances is it required?

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ROBERT M. C. ROSE
OF COUNSEL

June 17, 1998

VIA HAND DELIVERY

Ralph Jaeger, Esquire
Division of Legal Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399

Re: Aloha Utilities, Inc.; Docket No. 960545-WS
Water Quality Survey
Our File No. 26038.17

Dear Ralph:

I have just become aware of an article published in the "Suncoast News" this morning with various quotes from you about the results of the Survey. While I understand that these were preliminary figures, they raised a great deal of concern with my client and myself. The results as stated disregard the plain negotiated wording of the Survey itself, and are therefore misleading.

After much discussion between the parties, the Survey plainly said in the only bold language included therein: **"However, if you fail to return this Survey, the Commission will assume that you are satisfied with the quality of your water service provided by Aloha Utilities, Inc."**. The Survey also made it infinitely clear that it was **"imperative"** that customers respond. I would take this, and I believe any reasonable person would take this, to mean that those who did not respond, believe service is satisfactory. Therefore, the results of the Survey must be stated in terms of total customer base and not in terms of respondents. To do otherwise is very misleading and contrary to the plain wording of the Survey.

I have attached hereto the summary of the Survey results which I believe much more accurately reflects the results of the Survey than those that were published in the "Suncoast News". I certainly hope that the final results of the Survey, which I understand are to

be issued later today, will not contain such wholly misleading information again.

I have also attached for your information analysis of the results by subdivision as accumulated by Aloha. Hopefully, this will help you to understand that in the great majority of subdivisions are satisfied with the service provided by Aloha, and that there are many persons within the same subdivisions who apparently feel very differently about the various aspects of the quality of water received.

Should you have any questions with regard to this analysis or my concerns as outlined above, please let me know.

Sincerely,

ROSE, SUNDSTROM & BENTLEY, LLP

F. Marshall Deterding
For The Firm

FMD/tmg

Enclosures

cc: Mr. Bob Crouch, P.E.
Mr. James McRoy
Mr. John M. Starling
Mr. Charles H. Hill

aloha\17\4jaeger.fmd

Summary of Survey Results

		Percentage of Customer Base	Percentage Satisfied
Total Number of Surveys Mailed	8643		
Total Number of Surveys Returned	3707	42.89%	
Total Number of Surveys Reporting Discolored Water (Yes Answer to Question #1)	2559	29.61%	70.39%
Total Number of Surveys Reporting Taste and Odor Problems (No Answer to Question #2)	2191	25.35%	74.65%
Total Number of Surveys Reporting Pressure Problems (No Answer to Question #3)	1444	16.71%	83.29%
Customers Willing to Pay Increased Rates	505	5.84%	
Customers Willing to Pay Increased Rates Above 50%	35	0.40%	
Respondents Who Have Home Treatment Units (Percentage of Respondents Only)	2098	56.60%	
Resondents Who Don't Know if They Have Treatment Units	36	0.97%	

Odor and Taste by Subdivision

Subdivision	No Answer Ques. #2	Percentage of Customer Base Reporting Problem	Percentage in Subdivision Reporting Problem	Percentage in Subdivision Satisfied
Ashley Place Apts	42	0.49%	24.85%	75.15%
Chelsea Place	88	1.02%	62.86%	37.14%
Commercial	11	0.13%	5.45%	94.55%
Country Place	129	1.49%	32.49%	67.51%
Cypress Lakes	60	0.69%	42.55%	57.45%
Don't know	43	0.50%		
Foxhollow	23	0.27%	10.22%	89.78%
Foxwood	7	0.08%	9.09%	90.91%
Heritage Lakes	291	3.37%	31.19%	68.81%
Hills of San Jose	11	0.13%	22.92%	77.08%
Millpond	140	1.62%	19.23%	80.77%
Natura	12	0.14%	41.38%	58.62%
Nature's Hideaway	82	0.95%	24.05%	75.95%
Oak Creek Apts	3	0.03%	1.85%	98.15%
Park Lake Estates	122	1.41%	17.38%	82.62%
Plantation	12	0.14%	44.44%	55.56%
River Oaks	6	0.07%	15.00%	85.00%
Riveria	13	0.15%	48.15%	51.85%
Riverside	115	1.33%	25.44%	74.56%
Spring Haven	9	0.10%	22.50%	77.50%
Trinity Oaks	165	1.91%	39.76%	60.24%
Veterans Village	387	4.48%	19.02%	80.98%
Veterans Villas	7	0.08%	2.73%	97.27%
Viceroy Condo	1	0.01%	10.00%	90.00%
Woodbend	19	0.22%	36.54%	63.46%
Woodgate	34	0.39%	38.64%	61.36%
Woodtrail	110	1.27%	29.10%	70.90%
Wyndtree	249	2.88%	54.97%	45.03%
TOTALS	2191	25.35%		74.65%

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-40
Page 4 of 10

Pressure Problems by Subdivision

Subdivision	No Answer Ques. #3	Percentage of Customer Base Reporting Problem	Percentage in Subdivision Reporting Problem	Percentage in Subdivision Satisfied
Ashley Place Apts	19	0.22%	11.24%	88.76%
Chelsea Place	47	0.54%	33.57%	66.43%
Commercial	4	0.05%	1.98%	98.02%
Country Place	47	0.54%	11.84%	88.16%
Cypress Lakes	58	0.67%	41.13%	58.87%
Don't know	26	0.30%		
Foxhollow	27	0.31%	12.00%	88.00%
Foxwood	5	0.06%	6.49%	93.51%
Heritage Lakes	233	2.70%	24.97%	75.03%
Hills of San Jose	6	0.07%	12.50%	87.50%
Millpond	107	1.24%	14.70%	85.30%
Natura	8	0.09%	27.59%	72.41%
Nature's Hideaway	51	0.59%	14.96%	85.04%
Park Lake Estates	105	1.21%	14.96%	85.04%
Plantation	7	0.08%	25.93%	74.07%
River Oaks	2	0.02%	5.00%	95.00%
Riveria	6	0.07%	22.22%	77.78%
Riverside	79	0.91%	17.48%	82.52%
Spring Haven	2	0.02%	5.00%	95.00%
Trinity Oaks	137	1.59%	33.01%	66.99%
Veterans Village	194	2.24%	9.53%	90.47%
Veterans Villas	1	0.01%	0.39%	99.61%
Woodbend	12	0.14%	23.08%	76.92%
Woodgate	18	0.21%	20.45%	79.55%
Woodtrail		1.13%	25.93%	74.07%
Wyndtree	145	1.68%	32.01%	67.99%
TOTALS	1444	16.71%		83.29%

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-40
Page 5 of 10

Discolored Water by Subdivision

Subdivision	Yes Answer Ques. #1	Percentage of Customer Base Reporting Problem	Percentage in Subdivision Reporting Problem	Percentage in Subdivision Satisfied
Ashley Place Apts	45	0.52%	26.63%	73.37%
Chelsea Place	114	1.32%	81.43%	18.57%
Commercial	12	0.14%	5.94%	94.06%
Country Place	120	1.39%	30.23%	69.77%
Cypress Lakes	70	0.81%	49.65%	50.35%
Don't know	48	0.56%		
Foxhollow	30	0.35%	13.33%	86.67%
Foxwood	7	0.08%	9.09%	90.91%
Heritage Lakes	390	4.51%	41.80%	58.20%
Hills of San Jose	12	0.14%	25.00%	75.00%
Millpond	151	1.75%	20.74%	79.26%
Natura	16	0.19%	55.17%	44.83%
Nature's Hideaway	83	0.96%	24.34%	75.66%
Oak Creek Apts	3	0.03%	1.85%	98.15%
Park Lake Estates	144	1.69%	20.80%	79.20%
Plantation	14	0.16%	51.85%	48.15%
River Oaks	7	0.08%	17.50%	82.50%
Riveria	18	0.21%	66.67%	33.33%
Riverside	141	1.63%	31.19%	68.81%
Spring Haven	15	0.17%	37.50%	62.50%
Trinity Oaks	192	2.22%	46.27%	53.73%
Veterans Village	429	4.96%	21.08%	78.92%
Veterans Villas	10	0.12%	3.91%	96.09%
Viceroy Condo	1	0.01%	10.00%	90.00%
Woodbend	27	0.31%	51.92%	48.08%
Woodgate	43	0.50%	48.86%	51.14%
Woodtrail	120	1.39%	31.75%	68.25%
Wyndtree	295	3.41%	65.12%	34.88%
TOTALS	2559	29.61%		70.39%

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-40
Page 6 of 10

Different Water Colors Reported by Customers

Color Codes: A=Black B=Grey C=Brown D=Red E=Blue F=Green G=Milky White H=Other

	0
A	606
AB	186
ABC	26
ABCD	3
ABCDG	1
ABCDH	1
ABCF	1
ABCG	2
ABCGH	1
ABCH	5
ABD	8
ABEFGH	1
ABF	3
ABFH	1
ABG	6
ABH	7
AC	80
ACD	3
ACDG	1
ACDH	1
ACF	1
ACG	4
ACH	5
AD	11
AE	1
AEF	1
AF	5
AFH	2
AG	21
AGH	1
AH	24
B	467
BC	47
BCD	1
BCEFG	1
BCF	1
BCFGH	1
BCFH	1
BCG	5
BCH	1
BD	7
BDG	1
BE	1
BF	5
BFG	1
BG	24
BGH	1
BH	18
C	536
CD	18
CDG	3
CE	2
CF	12
CFH	1
CG	36
CH	13
D	23
DE	1
DG	3
E	3
EF	1
F	10
FG	1
FH	2
G	86
GH	1
H	128

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ROBERT M. C. ROSE
OF COUNSEL

June 19, 1998

VIA HAND DELIVERY

Blanca S. Bayo, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399

Re: Aloha Utilities, Inc.; Docket No. 960545-WS
Water Quality Survey
Our File No. 26038.17

Dear Ms. Bayo:

As you know, Aloha Utilities, Inc has recently completed a Survey of customer satisfaction with the quality of water provided by the Utility. The Public Service Commission staff has been analyzing the results of that Survey and has now issued a "Preliminary Tabulation" of customer responses to the Aloha Survey dated June 17, 1998.

We at Aloha Utilities have now had an opportunity to review the "Preliminary Tabulation" which we received late Wednesday afternoon and we find them to be even more troubling and misleading than the information which the "Suncoast News" reported in its June 17 edition based upon conversations with the PSC staff the previous day. This is especially upsetting in light of the fact that Wednesday morning I hand delivered a letter to the staff stating my concerns with the "Suncoast News" article, in advance of the release of the "Preliminary Tabulation".

The Commission initiated and configured this unprecedented customer satisfaction Survey to elicit responses from customers who were dissatisfied with their water service. In fact, the only bold language in the entire Survey is the provision that provides "If you do not return the survey, it will be presumed by staff to mean you are satisfied with the quality of water service you currently receive". In full recognition of this language, approximately 60% of the Utility's customers did not respond to the Survey. Yet the information contained within the staff's "Preliminary Tabulation" does not even mention the assumption that not only must be inherent, but which is also plainly and boldly stated on the face of the Survey itself. In fact, the "Preliminary Tabulation" documents published Wednesday deal almost exclusively with statistics based upon a comparison of answers to responding customers, versus a comparison to surveyed customers. This "Preliminary Tabulation" only mentions the number of persons who did not return the Survey in passing, while giving absolutely no weight whatsoever to the bold language of the Survey coversheet, and

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therefore the majority of Aloha's customers. Would the PSC staff have issued numerous pie charts and graphs which appear to show 70% dissatisfaction if only 10% or 5% of the customers had responded to the Survey? I certainly hope not.

As a result of the way in which the Survey results are being published in the staff's "Preliminary Tabulation", the staff has violated the conditions under which Aloha agreed to undertake the Survey and the good-faith agreements as to its terms. More importantly, the staff's "Preliminary Tabulation" allows for substantial misinterpretation of customer reaction to the Survey and misinforms the public about the results of that Survey.

Aloha Utilities, Inc. has obtained copies of all of the Survey responses from the Commission and has tabulated its own results. Some of these results have previously been provided to the staff and are being provided as an attachment hereto.

While we would certainly agree that the significant number of responses, and the significant amount of customer concerns with discolored water, taste and odor are cause for further review, the way in which the staff's "Preliminary Tabulation" of those results has been published substantially overstates the level of that dissatisfaction and misleads those who review it.

We are therefore very disappointed and upset at the way in which this information will be received and misunderstood. The manner in which the Survey results are presented by the Commission staff effectively ignores the majority of Aloha's customers who no doubt relied on the bold language at the beginning of the Survey indicating that their voices would be heard if they chose to intentionally not return the Survey.

Sincerely,

ROSE, SUNDSTROM & BENTLEY, LLP

F. Marshall Deterding
For The Firm

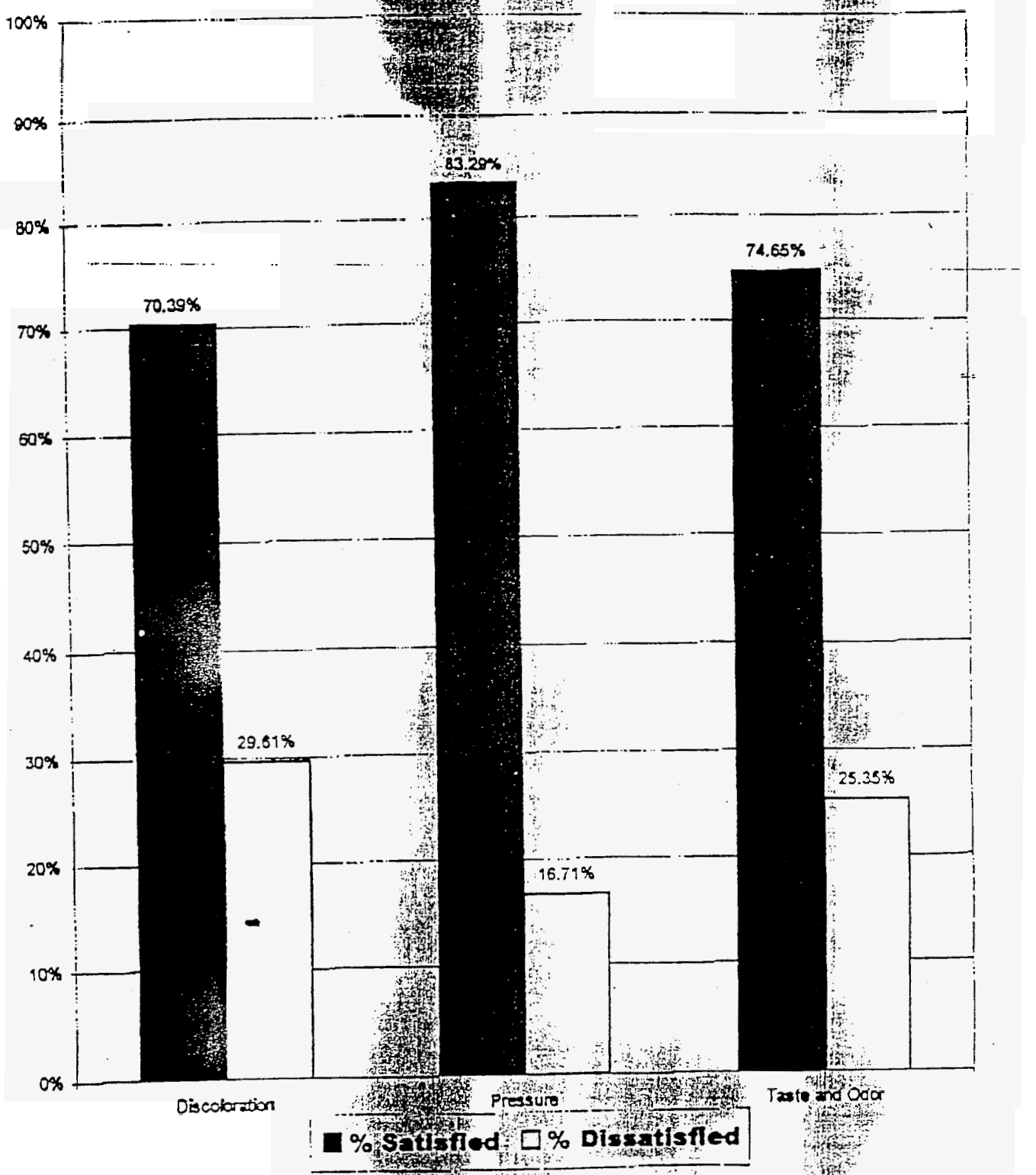
FMD/tmg

Enclosure

cc: Ralph Jaeger, Esquire
Charles H. Hill, Director
Mr. James McRoy
Mr. John M. Starling
Mr. Bob Crouch, P.E.
James Goldberg, President

aloha\17\2bayo.fmd

Summary of Water Quality Survey Results



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[redacted]BERT M. C. ROSE, OF COUNSEL
WAYNE L. SCHIEFELBEIN, OF COUNSEL

October 18, 2002
VIA HAND DELIVERY

RECEIVED-FPSC
02 OCT 18 PM 4:20
COMMISSION CLERK

Blanca S. Bayo, Director
Division of the Commission Clerk
and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Aloha Utilities, Inc.; PSC Docket No. 010503-WU - Water Rate Case
Our File No. 26038.35

PSC Docket No. 960545-WS - Water Quality Investigation
Our File No. 26038.17

Dear Ms. Bayo:

Attached are the original and fifteen copies of the 2002 Water Facilities Upgrade Report for Aloha Utilities, Inc.'s Seven Springs water system as required pursuant to the provisions of Order No. PSC-02-0593-FOF-WU and Order No. PSC-02-1056-PCO-WU in Docket No. 010503-WU.

Appendix A to this report is the final report through the investigation, bench tap and pilot scale testing of the pilot project undertaken to comply with the provisions of Order No. PSC-00-1285-FOF-WS issued in Docket No. 960545-WS on July 14, 2000. Unless and until additional requirements are imposed by DEP during any subsequent design and permitting of the plant to implement this treatment alternative, this constitutes the final report on the pilot project.

Based upon the above, this report is filed to comply not only with the requirements of Order Nos. PSC-02-0593-FOF-WU and PSC-02-1056-PCO-WU in Docket No. 010503-WU, but also to constitute what is expected to be the final report to be filed in Docket No. 960545-WS required by Order No. PSC-00-1285-FOF-WS.

If you have any questions in this regard, please let me know.

Sincerely,

ROSE, SUNDSTROM & BENTLEY

F. Marshall Deterding
For The Firm

FMD/tms
cc: Ralph Jaeger, Esquire
Mr. Stephen Watford
Robert C. Nixon, CPA
[redacted]

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Docket Nos. 020896-WS & 010503-WU
Exhibit VAK-41
Page 1 of 3

2002 Water Facilities Upgrade Report

for

Seven Springs Water System
Pasco County, Florida

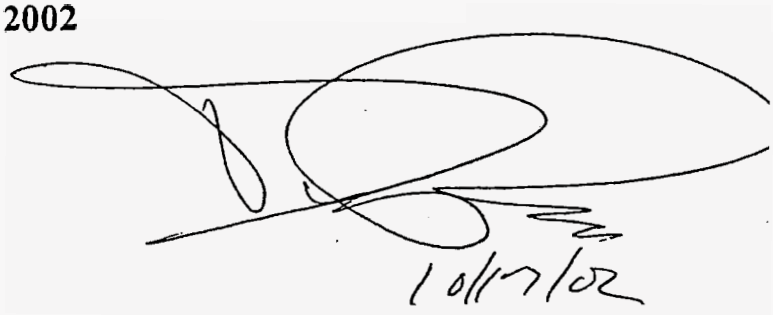
Prepared for:

Aloha Utilities, Inc.
6915 Perrine Ranch Road
New Port Richey, FL 34655
(727) 372-0115

Prepared by:

David W. Porter, P.E.
3197 Ryans Court
Green Cove Springs, FL 32043
(904) 291-2744

October 2002



DOCUMENT NUMBER-DATE
11373 OCT 18 02
FPSC-COMMISSION CLERK

HYDROGEN SULFIDE READINGS FROM WELL 9 DOCUMENTED IN THE MIEX PROJECT 2001

DATE	TIME	CONC. OF H_2S mg/l
4/12	11:15 AM	4.05
	4:00 PM	4.37
4/13	9:00 AM	4.22
	2:45 PM	3.93
4/14	8:30 AM	4.10
	3:00 PM	4.15
4/15	9:10 AM	4.32
	3:30 PM	3.96
4/16	9:15 AM	3.50
	4:00 PM	3.94
4/17	10:00 AM	5.93
	3:30 PM	6.55
4/18	9:30 AM	4.38
5/2	11:30 AM	6.71
5/3	12:00 PM	5.34
	2:50 PM	6.58
5/4	11.00 AM	5.99
6/9	1:30 PM	6.06
7/10	11:00 AM	5.99
	2:15 PM	6.21

FLORIDA PUBLIC SERVICE COMMISSION
Capital Circle Office Center • 2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

M E M O R A N D U M

OCTOBER 23, 1997

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING

FROM: DIVISION OF WATER AND WASTEWATER (MCROY, STARLING, CROUCH, CHASE, VON FOSSEN)
DIVISION OF LEGAL SERVICES (JAEGER)

RE: DOCKET NO. 960545-WS - INVESTIGATION OF UTILITY RATES OF ALOHA UTILITIES, INC.
COUNTY: PASCO

AGENDA: NOVEMBER 4, 1997 - REGULAR AGENDA - POST HEARING DECISION PARTIES MAY PARTICIPATE (ISSUE 1 IS PROPOSED AGENCY ACTION).

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: NONE

FILE LOCATION: I:\PSC\WAW\WP\960545B.RCM
R:\PSC\WAS\123\ALOHA.WK4 - ATTACHMENTS 5 & 6

CASE BACKGROUND

Aloha Utilities, Inc. (Aloha or Utility), is a class A water and wastewater utility located in Pasco County. The Utility consists of two distinct service areas -- Aloha Gardens and Seven Springs. As of December 31, 1996, Aloha was serving 8,474 ERCs in its Seven Springs service area.

On April 30, 1996, Mr. James Goldberg, President of the Wyndtree Master Community Association, filed a petition, signed by 262 customers within Aloha's Seven Springs service area, requesting that the Commission investigate the utility's rates and water quality. The petition and request were assigned Docket 960545-WS.

For the purposes of hearing, Docket 960545-WS was consolidated with Docket 950615-SU (Aloha's reuse case). The hearing was held on September 9-10, 1996 in New Port Richey, and concluded on October 28, 1996 in Tallahassee. Customer testimony about quality of service was taken on September 9, 1997. Both customer testimony sessions were attended by over 500 customers, fifty-six of whom

customers in an effort to provide a better estimate of how many customers are experiencing problems with black water.

In response to the black water complaints, the DEP collected and analyzed samples of the black water from 16 homes within Chelsea and Wyndtree in March, 1996. The DEP's analysis indicated that the black substance was copper sulfide. Aloha and the DEP have each tested the water from wells 8 and 9 and the copper level in both of these wells was below detectable limits. Since Aloha's transmission and distribution system does not contain any copper, the copper sulfide must be formed by a reaction of sulfides with the copper plumbing inside of the customer's home.

As is the case for most of Florida's groundwater supply, hydrogen sulfide is present in Aloha's raw water. Sulfide is one of several different species of sulfur which can exist in water, depending upon the water's pH (a measure of the water's acidity or alkalinity). Currently, Aloha is converting (oxidizing) all of the sulfides which are present in its raw water supply into a sulfate by chlorinating the water. Sulfate is a form of sulfur which does not have a strong, unpleasant odor and does not react with copper piping to form copper sulfide. Aloha states that hydrogen sulfide has been successfully removed by chlorination at countless numbers of water facilities for decades. Many utilities under the Commission's jurisdiction also convert sulfides to sulfates by chlorination. Many other utilities in Florida, however, have also installed tray aerators to remove some of the sulfide from the water. Since this type of treatment typically removes only 50% of the sulfides, chlorination is then needed to oxidize the remaining sulfides.

Unfortunately, the sulfate can be converted back into a sulfide by sulfur reducing bacteria which are commonly found in small numbers in most water. Aloha's engineer has stated that this is the only mechanism by which the sulfates can be converted back into a sulfide after the water leaves the plant. Since these sulfur reducing bacteria thrive in very warm areas, such as the hot water heater, the number of bacteria is usually not sufficient enough to create hydrogen sulfide in cold moving water. However, if the water temperature is hot and/or the water is stagnant, such as in seldom used guest bathroom plumbing, the number of bacteria can be increased to very high numbers. When large numbers of sulfur reducing bacteria are present, relatively large quantities of sulfate can be converted back to sulfide which can then react with the copper plumbing and form copper sulfide. Sulfides can also form within a water system's transmission and distribution system. Staff is not aware of any evidence, however, which proves

State of Florida

Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: DECEMBER 3, 1998

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING (BAYÓ)

FROM: DIVISION OF WATER AND WASTEWATER (MCROY, CROUCH)
DIVISION OF LEGAL SERVICES (JAEGER)

RE: INVESTIGATION OF UTILITY RATES OF ALOHA UTILITIES, INC. IN PASCO COUNTY

DOCKET NO. 960545-WS - ALOHA UTILITIES, INC.
COUNTY: PASCO

AGENDA: DECEMBER 15, 1998 - REGULAR AGENDA - PARTIES MAY PARTICIPATE

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: NONE

FILE NAME AND LOCATION: I:\PSC\WAW\WP\960545C.RCM

CASE BACKGROUND

Aloha Utilities, Inc. (Aloha or Utility) is a class A water and wastewater utility in Pasco County. The Utility consists of two distinct service areas -- Aloha Gardens and Seven Springs. As of December 31, 1997, Aloha was serving approximately 8,457 water customers in its Seven Springs service area.

On April 30, 1996, Mr. James Goldberg, President of the Wyndtree Master Community Association, filed a petition, signed by 262 customers within Aloha's Seven Springs service area, requesting that the Commission investigate the utility's rates and water quality. The petition and request were assigned Docket 960545-WS.

For the purposes of hearing, Docket 960545-WS was consolidated with Docket 950615-SU (Aloha's reuse case). The hearing was held on September 9-10, 1996 in New Port Richey, and concluded on October 28, 1996 in Tallahassee. Customer testimony about quality of service was taken on September 9, 1996. Both customer testimony

In the 1995 PAA recommendation, staff explained that the odor and various discoloration complaints which were received could be traced to the hydrogen sulfide, magnesium, manganese, and iron which are commonly found in Florida's groundwater supply. Staff believed that the cost of providing additional treatment to remove these substances would be expensive and would increase the customer's monthly charges. Staff stated that it is possible that the level of odor and discoloration was more tolerable to the customers than the monthly price increase. Staff suggested that the utility would be well served if it surveyed its customers to determine if they would be willing to accept the present conditions in lieu of increased water rates.

Beginning in January, 1996, the Florida Department of Environment Protection (DEP) started to receive complaints about water discoloration (black) from Aloha customers within the Chelsea and Wyndtree areas. There are 436 homes in the Wyndtree area and 144 homes in Chelsea and it is staff's understanding that most, if not all, of these homes have copper plumbing. During their visit to several customer homes during June, 1996, staff engineers first observed black water coming out of the hot water side of the bathroom tubs and sinks in several homes.

In response to the black water complaints, the DEP collected and analyzed samples of the black water from 16 homes within Chelsea and Wyndtree during March, 1996. The DEP's analysis indicated that the black substance causing the discoloration was copper sulfide. Aloha and the DEP have each tested the water from wells 8 and 9 and the copper level in both of these wells was below detectable limits. Since Aloha's transmission and distribution system does not contain any copper, the copper sulfide must be formed by a reaction of sulfides with the copper plumbing inside of the customer's home. Engineers with the DEP, the utility, and the staff all agree that the black discoloration is formed in this manner.

As is the case for most of Florida's groundwater supply, hydrogen sulfide is present in Aloha's raw water. Sulfide is one of several different species of sulfur which can exist in water, depending upon the water's pH (a measure of the water's acidity or alkalinity). Currently, Aloha is converting (oxidizing) all of the sulfides which are present in its raw water supply into a sulfate by chlorinating the water. Sulfate is a form of sulfur which does not have a strong, unpleasant odor and does not react with copper piping to form copper sulfide.

Water discoloration and odor problems result when sulfate is converted back to sulfide by sulfur reducing bacteria (SRB) which are commonly found in small numbers in most water. Aloha's engineer has stated that this is the only mechanism by which the

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Investigation of utility rates of Aloha Utilities, Inc. in Pasco County.	DOCKET NO. 960545-WS ORDER NO. PSC-99-0061-FOF-WS ISSUED: JANUARY 7, 1999

The following Commissioners participated in the disposition of this matter:

JOE GARCIA, Chairman
SUSAN F. CLARK
E. LEON JACOBS, JR.

NOTICE OF PROPOSED AGENCY ACTION ORDER DETERMINING THAT THE COMMISSION SHOULD TAKE NO FURTHER ACTIONS IN REGARDS TO QUALITY OF SERVICE IN THIS DOCKET AND CLOSING DOCKET
AND
FINAL ORDER DENYING THE UTILITY'S REQUEST THAT THE COMMISSION ISSUE AN ORDER DECLARING IT TO BE PRUDENT TO BEGIN CONSTRUCTION OF THREE CENTRAL WATER TREATMENT FACILITIES

operation!

BY THE COMMISSION:

NOTICE is hereby given by the Florida Public Service Commission that the action concerning any further action in regards to quality of service discussed herein is preliminary in nature and will become final unless a person whose interests are substantially affected files a petition for a formal proceeding, pursuant to Rule 25-22.029, Florida Administrative Code.

BACKGROUND

Aloha Utilities, Inc. (Aloha or utility) is a class A water and wastewater utility in Pasco County. The utility consists of two distinct service areas -- Aloha Gardens and Seven Springs. As of December 31, 1997, Aloha was serving approximately 8,457 water customers in its Seven Springs service area.

The utility initially filed a reuse application (Docket No. 950615-SU), and a customer meeting was held on August 9, 1995. Approximately 200 customers attended the meeting, and eight of the eighteen customers who testified offered complaints about poor

Cost to customers
Pages 9-10

DOCUMENT N
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I. Additional Background Information and Facts

Beginning in January, 1996, the Florida Department of Environmental Protection (DEP) started to receive complaints about water discoloration (black water) from Aloha customers within the Chelsea and Wyndtree areas. There are 436 homes in the Wyndtree area and 144 homes in Chelsea and it appears that most of these homes have copper plumbing. During their visit to several customer homes during June, 1996, Commission Staff engineers first observed black water coming out of the hot water side of the bathroom tubs and sinks in several homes. The emergence of the black water problem in Wyndtree and Chelsea was the principle change in circumstances between the PAA order and the September, 1996 customer hearings.

In response to the black water complaints, the DEP collected and analyzed samples of the black water from 16 homes within Chelsea and Wyndtree during March, 1996. The DEP's analysis indicated that the black substance causing the discoloration was copper sulfide. Aloha and the DEP have each tested the water from wells 8 and 9 and the copper level in both of these wells was below detectable limits. Since Aloha's transmission and distribution system does not contain any copper, the copper sulfide must be formed by a reaction of sulfides with the copper plumbing inside of the customer's home. Engineers with the DEP, the utility, and the Commission Staff all agree that the black discoloration is formed in this manner.

As is the case for most of Florida's groundwater supply, hydrogen sulfide is present in Aloha's raw water. Sulfide is one of several different species of sulfur which can exist in water, depending upon the water's pH (a measure of the water's acidity or alkalinity). Currently, Aloha is converting (oxidizing) all of the sulfides which are present in its raw water supply into a sulfate by chlorinating the water. Sulfate is a form of sulfur which does not have a strong, unpleasant odor and does not react with copper piping to form copper sulfide.

Water discoloration and odor problems result when sulfate is converted back to sulfide by sulfur reducing bacteria (SRB) which are commonly found in small numbers in most water. Aloha's engineer has stated that this is the only mechanism by which the sulfates can be converted back into a sulfide after the water leaves the plant. Since these SRB's thrive in warm areas, such as the hot water heater, the number of bacteria is usually not

MEMORANDUM

To: Van Hoofnagle
From: Michael D. LeRoy
Subject: Summary of Data on Aloha Utilities
Date: September 22, 1997

After our meeting with DOH on Sept. 19, 1997 concerning the Madden letter, I obtained the data sheets that Ed Bettinger had provided Madden. Attached is a summary of that data.

There are four blocks of data: a set taken by Aloha Utilities on cold water taps, a set taken by DEP on hot water taps, a set taken by DEP on cold water taps, and a set taken by Pasco County Health Department. The first three sets were all taken at the same addresses. The samples analyzed by the County Health Department were taken from various points in the Aloha Utility service area. There is no information with the data which tells whether or not the Lead-Copper Rule sampling protocol was followed -- obviously it was not for the hot water samples. Also, there is no information on whether or not water conditioning units might have been installed in the homes, if the sample sizes were one liter, if the samples were acidified or not, or on the water standing time in the plumbing prior to drawing the sample.

Based on the available data, it is my opinion that it is impossible to leap to any conclusion. If the data were collected using the accepted sampling protocol, then one could only conclude that Aloha Utility is in compliance with the Lead Copper Rule.

Attachment: Data Summary

Copper Analyses Results

Address	Name	Date (Aloha)	Cold Water	Date (DEP)	Hot Water	Date (DEP)	Cold Water
1616 Davenport	Totten	2/7/96	1.02	2/7/96	2.35		
1538 Haverhill	Tennyson (1)	2/7/96	0.04	2/7/96	5.00		
1354 Haverhill	Parisi	2/7/96	0.14	2/7/96	0.67		
1410 Amsbury	Shirley (1)	2/7/96	0.01	2/7/96	0.49		
1541 Haverhill	Bunhick	2/13/96	0.20	2/13/96	0.07		
1400 Haverhill	Fuhrman	2/13/96	0.10	2/13/96	1.21	3/7/96	0.09
1412 Haverhill	Milos	2/13/96	0.60	2/13/96	3.02		
1435 Wyndham	Francis	2/13/96		2/13/96	49.10		
1303 Davenport	Lewis	2/20/96		2/20/96	0.21		
1545 Brittany	Tennyson (2)	2/20/96		2/20/96	0.11		
1471 Haverhill	Luberto	2/20/96	0.01	2/20/96	0.31		
1410 Amesbury	Shirley (2)	2/20/96	0.06	2/20/96	4.08	3/7/96	0.52
1329 Middlesex	Savas	2/26/96	0.13	1/31/96	1.21		
1416 Davenport	Rifkin	2/26/96	0.04	1/31/96	6.86	3/7/96	0.27
1348 Amsbury	Lenahan	2/26/96	1.23	1/31/96	0.53		
1456 Haverhill	Vento	2/26/96	0.03	1/31/96	294.60	3/7/96	0.49
		Pasco Co. DOH					
7331 Captina Cir	Rybak	10/24/96	0.04				
1153 Farmindale	Letonoff	10/24/96	0.03				
1822 Kingmere Dr.	Thiele	10/24/96	0.07		All copper results expressed in mg/L		
1430 Davenport Dr.	Codgan	10/24/96	0.07		Copper Action Level at 90% = 1.3 mg/L		
7024 Lake Placid Ln	Platka	11/20/96	0.02 (inside)				
7024 Lake Placid Ln	Platka	11/20/96	0.03 (outside)				
9352 Amazon Dr.	Potrafka	11/20/96	0.12 (inside)				
9352 Amazon Dr.	Potrafka	11/20/96	0.01 (outside)				
3441 Tiki Dr.	Grabble	11/20/96	0.15 (inside)				
3441 Tkik Dr.	Grabble	11/20/96	0.029 (outside)				

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FLORIDA DEPARTMENT OF HEALTH

Lawton Chiles
Governor

James T. Howell, M.D., M.P.H.
Secretary

Bureau of Environmental Toxicology August 28, 1997

Mr. Van Hoofnagle, P.E.
Department of Environmental Protection
2600 Blair Stone Road
Tallahassee
Florida 32399-2400

Dear Mr. Hoofnagle:

Re: Hydrogen Sulfide in Drinking Water Samples

This letter is in response the correspondence, laboratory tests results and data on drinking water from Aloha Utilities, Pasco County that were submitted to the Bureau of Environment Toxicology for evaluation and interpretation.

Sulfates are found naturally in waters in concentrations ranging from tenths of a milligram/liter to several thousand milligrams/liter. The major health effect of sulfate is its laxative action observed when large doses are ingested at about 300 mg/L Sodium Sulfate (Na_2SO_4) and 390 mg/L Epsom Salt, Magnesium Sulfate ($MgSO_4$). Sulfate is usually found dissolved in water and under anaerobic conditions it can be reduced to sulfide and precipitated in sediments, released to the atmosphere, or is incorporated into living organic matter.

Copper salts, such as copper sulfate, dissolve readily in water with low pH and will hydrolyze. and precipitate in water of normal alkalinity. Cold-water corrosion rate of copper tubing occurs as a function of pH and corrosion decreases with increasing pH. Copper is a gastrointestinal irritant and can be highly toxic if ingested in large quantities. Copper Sulfate is recommended as an emetic for adults (500 mg) and children (37-50 mg) and if vomiting does not occur children may suffer toxic effects.

Hydrogen sulfide (H_2S) is a colorless, flammable gas with an offensive odor suggesting rotten eggs. Hydrogen sulfide is soluble in water and is incompatible with strong oxidizers and metals. Hydrogen sulfide poisonings of humans usually occur by inhalation exposure of gas but soluble salts have been used in laboratory animals. The signs of hydrogen sulfide poisoning are similar to those of cyanide. Sulfide has a greater tendency to produce local tissue reactions such as conjunctivitis and pulmonary edema. The most common health effects of acute sulfide toxicity are nervousness, cough, nausea, headache, and lack of adequate sleep lasting from 1-3 days. Sulfide forms sulfmethemoglobin and oxygen is indicated for exposed persons showing signs of Adult Respiratory Syndrome. The chronic health effects of repeated exposure to hydrogen sulfide are not well established.

Review of the correspondence, laboratory tests results, and data on hydrogen sulfide in drinking water revealed that a citizen complaint was made on July 9, 1997, about the problem of "Black Water" coming from the pipes of consumers utilizing the Aloha Utilities Water System. A request was made for correction of the problem. The laboratory tests (Florida Department of Environmental Protection) results for the black precipitate from hot water (filtered grab sample, March 22, 1996) showed elevated Aluminum (1,000 mg/kg), Barium (7.88 mg/kg), Calcium (1.59×10^4 mg/kg), Chromium (18 mg/kg), Copper (6.13×10^5 mg/kg), Thallium (79 mg/kg), Iron (4,460 mg/kg), Manganese (13 mg/kg, Nickel (13 mg/kg), Selenium (145 mg/kg), Sodium (601 mg/kg), Strontium (30 mg/kg) and Zinc (610 mg/kg). No hydrogen sulfide was detected.

Results of water samples from residences sampled February 7th, 13th, 20th and 26th, 1996 (Tri County Environmental & Analytical Lab, Inc.) showed that only copper (1.23 mg/L) was elevated in one sample taken on February 26th. Hot water samples (Chelsea Place) taken January 31st, February 7th, 13th, and 20th and March 7th, 1996 (Florida Department of Environmental Protection), showed that 8/16 (50%) had elevated copper levels ranging from 1.2 mg/L to 294.6 mg/L and 2 samples had elevated color readings (17.5 and 20.0). The laboratory results of samples collected October 29, 1996 (Florida Department of Environmental Protection), showed sulfide and sulfate concentrations ranging from 0.7 mg/L to 4.9 mg/L detected in 4/21 (19%) of the samples analyzed. Residences sampled in Seven Springs and Wyntree showed that the home with a water softener had elevated concentrations of copper (8.81 mg/L , cold water and 3.4 mg/L , hot water), but the concentrations at the hose bib (0.214 mg/L) and meter (0.441mg/L) were within the normal range. Lead was elevated in samples taken at the hose bib (0.028 mg/L) and the meter (0.118 mg/L). Results of samples collected November 4, 1996 (Florida Department of Environmental Protection), showed sulfide and sulfate concentrations ranging from 0.05 mg/L to 7.9 mg/L detected in 12/93 (12.9%) of the samples analyzed. Elevated copper concentration (4.44 mg/L) was detected in sample from well #9.

The Engineering Report, Pumping and Disinfection Plants for Well #8 and Well #9, prepared for Aloha Utilities Inc. (June 29, 1994) by Genesis Group Inc., stated under Seven Springs Water System Physical Condition that "The finished water quality meets all FDEP requirements except for copper. Methods to control the copper levels will be addressed in the optimal corrosion control treatment evaluation which is being prepared for submittal."

The detection of copper at extremely high concentrations and sulfide in drinking water samples pose some health concerns for potential risks for citizens of Aloha to be exposed to toxic effects of compounds resulting from the interactions of copper, sulfate and sulfide. The black water problems that the citizens are experiencing are as a result of interactions of copper and sulfate in drinking water causing the formation of copper sulfate and hydrogen sulfide. Under anaerobic conditions sulfate can be reduced to sulfide and precipitates in sediments in the water imparting the black color. Low pH of water will enhance the solubility of copper sulfate in water, but in water of normal alkalinity copper will hydrolyze and precipitate. Corrosion of copper tubing in cold-water occurs as a function of pH and hydrogen sulfide incompatibilities with copper will enhance the corrosion rate of the copper tubing. Proper corrosion control methods are needed to

reduce the amount of corrosion that will occur to the copper tubing, the amount of copper present in the water and the formation of copper sulfate and to reduce the amount and effect of hydrogen sulfide in the drinking water. Aeration is needed to reduce and prevent the formation of hydrogen sulfide in the drinking water in the copper tubing system which should reduce the cold-water copper corrosion rate. Hydrogen sulfide is soluble in water and its incompatibilities with copper will pose some health concerns for the residents of Aloha to be exposed to the black water caused by high levels of copper, copper sulfate and hydrogen sulfide. Prompt corrective actions must be taken to reduce the possibility of exposure of residents of Aloha to the high levels of copper, copper sulfate and hydrogen sulfide and to reduce and prevent potential health risks from excess copper, copper sulfate and hydrogen sulfide present in their drinking water.

Thank you for your inquiry. If you have any further questions please contact me at the above address or at (904) 488-3385 or FAX: (904) 921-0298.

Sincerely,

Uford A. Madden, DVM, MS, PhD.
Toxicologist

cc: Ed Bettinger
Environmental Health (HSEH)

THE ROLE OF INVISIBLE ELEMENTAL SULFUR

Honorable Commissioners,

My name is V. Abraham Kurien. I am a customer of Aloha Utilities and live at 1822 Orchardgrove Avenue, in the Seven Springs Area. I had the privilege of addressing the Public Service Commission over two years ago during its 2002 January hearing. Then I made the suggestion for the creation of a Citizens' Advisory Committee to solve the Water Quality issues because of my experience in Santa Fe, New Mexico as a facilitator who helped to resolve tensions between parties pulled apart by adversarial positions. I had hoped then that we would get better water within a short period.

Today I appear before you with those hopes dashed because of the lack of timely intervention on the part of regulatory agencies and the hesitation of Aloha to create a Citizens' Advisory committee and interact purposefully with them when the citizens made that initial offer. Even after the extremely delayed formation of the CAC, there has been very little in the form of effective communication between Aloha and its customers. The one positive outcome during the last two years has been the technical review of the production and distribution of drinking water in the Seven Springs area sponsored by the Office of Public Counsel and its completion in a very delayed manner over the period of one year.

The context of that technical review needs to be stated clearly so that all of us are well informed about why the customers of a utility found themselves in the burdensome position of having to seek the help of the PSC and the Office of Public Counsel to force upon the utility a technical review of its water processing method and facilities. It is natural to assume that water utilities will provide a competitive standard for the quality of drinking water about which they can be proud and concerning which the customers have no complaints. Yet 1491 customers of Aloha after varying periods of time during which they unsuccessfully tried to get the utility to deliver water that remains drinkable and can be used for other domestic purposes without anxiety, finally decided to serve notice on Aloha that if within 12 months of July 15, 2002, the water quality did not improve significantly, they would have no alternative but to request the

PSC to exercise its authority and jurisdiction to delete them from the service territory of Aloha and give them the opportunity to connect to Pasco county Water utility.[1]

This PSC hearing has been announced as an opportunity for customers to respond to that Technical Review by Dr Levine as well as to consider other options that may lead to resolution of the matter of poor water quality during the last ten years in this area. I like to start my presentation by summarizing the conclusions of the Technical review and analysis of raw and processed water into three simple statements with which I hope everyone can agree. They are:

1. **At Aloha Utilities, during the years 1993-2003, there was inadequate monitoring of water parameters that could have provided for better process control of the currently used methodology**.

2. **The sole use of chlorination, which is the method that is currently used and the short-term recommendations that were made by Dr Levine in Phase I report of the audit submitted in August 2003 are not able by themselves to reduce significantly the incidence of black water** (and by implication rotten-egg odor) **within domestic plumbing, because of certain limitations that are inherent in the current method in its own context and detected during Phase II of the audit.**

3. **Therefore, one or more of the alternate upgraded methods would be necessary to reduce the incidence of black water and such method/s should be used after an appropriate investigation of the efficacy of the method/s chosen, through a pilot-scale program.**

The data collected by Dr Levine during her year long Technical Review of Aloha's Seven Springs Water system may seem extensive when compared to the almost nonexistent state of relevant data to review the adequacy of process control. Some data is better than no data, I suppose. If Aloha had offered non-hesitant co-operation, we would have had a much greater volume of data from which we could have drawn more robust conclusions. However, even from the small amount of data that we now have, we can draw some relevant conclusions as Dr Levine

has done. In addition, to the three major conclusions that I have indicated above, the data also reveals certain inadequacies of processing method and facilities, which Dr Levine alludes to but which she has not addressed in her Executive Summaries, Recommendations and Conclusions.

Dr Levine was unable to connect her recommendations of upgrades for improvement for water quality with all the data she collected because within the parameters of her audit she did not undertake extensive investigations of the black water produced in the domestic plumbing to define conclusively the causes for the formation of black water and rotten egg smell in home faucets.

However, an analysis of the data that Dr Levine has gathered makes it possible to expand some observations that had been previously made by nearby utilities,[2] study groups organized by the PSC such as the Interagency Copper Corrosion Study Group[3] and investigations conducted by the Florida Department of Environmental Protection.[4] **These observations had suggested as early as 1991 that the sole use of chlorination for processing underground water that is deficient in dissolved oxygen, may have an inappropriate pH and has a high concentration of hydrogen sulfide will produce elemental sulfur in processed water and may lead to the phenomenon of black water.**

By issuing new guidelines for the "Control of Copper Corrosion and Black Water" in August of 2003, FDEP has recognized this critical role for **elemental sulfur** in Copper Corrosion and Black water.[5] **The new guideline reads, "Direct Chlorination shall not be used to remove (i.e. oxidize) 0.3mg/L or more of total sulfide unless the elemental sulfur formed during chlorination is removed ".**

I like to review the data obtained by Dr Levine to see what information the recent audit gives us that correlates with this conclusion of the Department of Environmental Protection. First of all, I want to draw your attention to the fact **all 15 samples of raw water** collected by Dr Levine during Phase II of her audit from the eight wells of Aloha, had hydrogen sulfide concentrations greater than 0.3mg/l, the concentration mentioned as a threshold **for removal of elemental sulfur** in the new FDEP guidelines.[6] One of the two hydrogen sulfide levels from well

9 was as high as 3.95 mg/l, **ten** times the threshold level. Between March and July of 2001, **all 20 samples** of water that were tested for hydrogen sulfide in Well 9 [7] had levels greater than 3.5 mg/l as indicated in Phase I Report with the highest level noted at 6.71mg/l, which is more than **20** times the threshold level. Thus 21 out of the 22 readings of hydrogen sulfide we have from Well 9 are higher than 3.5 mg/l. In view of the new guideline issued by FDEP it is important to know whether elemental sulfur was produced in the treated water on these occasions.

Unfortunately there is no standardized method available for measuring the level of **elemental sulfur** produced in treated water. But Dr Levine does acknowledge that **elemental sulfur** is produced during Aloha's method of water processing. On what observation or knowledge does she then base that fact? It is substantiated by the well known scientific fact that when chlorine is used to oxidize hydrogen sulfide in water, the reaction is understood as a two stage reaction which first forms **elemental sulfur** depending on the amount of chlorine available as well as other important considerations such as pH, temperature of the water, other oxidizable materials in raw water and the amount of **dissolved oxygen** present. Subsequently the sulfur initially formed is converted to sulfate depending on the same conditions. **This has been known since 1952, over fifty years ago.**[8] Dr Levine has given detailed information about this in Phase I report on page 18 and in Phase II report on page 16 including chemical equations, which I will not go into at this time. One way to determine to what extent **elemental sulfur** and sulfate have formed during the processing at any well is to determine the chlorine demand of hydrogen sulfide alone, which is the amount of chlorine that reacted with the hydrogen sulfide present in the raw water at that well at that specific sampling time. When the calculated number for chlorine demand is 2.08, it shows that hydrogen sulfide was converted only as far as **elemental sulfur**. When the chlorine demand number is 8.33, it confirms that all the hydrogen sulfide was converted to sulfate. Intermediate values between 2.08 and 8.33 show that both sulfur and sulfate were produced. Closer the value is to 2.08, more **elemental sulfur** was produced and closer the value is to 8.33 more sulfate was produced. Dr Levine showed in Figure 15 on page 21of the Phase II of her report that the values for the fifteen samples of raw water fell between 2.31 and 7.83 showing a significant range of values for the relative production of **elemental sulfur** and sulfate in these 8 wells of Aloha. Statistical analysis showed that the values would cluster along the statistical mean of 5.5 with a high correlation co-efficient, which means that it is a valid

conclusion. **Converted to percentages, this means that on a statistical average, in Aloha wells 45% of hydrogen sulfide was converted to elemental sulfur and only 55% of hydrogen sulfide present in raw water was converted to sulfate. This observation is in agreement with other studies done on underground water deficient in oxygen, according to Dr Levine.**

Dr Levine has also provided qualitative evidence to show that this is not merely a theoretical construct, but that the presence of elemental sulfur can be demonstrated in processed water by a scanning electron microscope.[9] While it is true that the distributed water that reaches the domestic meter is generally clean and clear as claimed by Aloha in its information handouts, **it is only so to the naked human eye**. Aided by the technological advances such as the scanning electron microscope, it is possible to document that not only is **elemental sulfur** present in processed water, but that it forms a series of complexes with metals present in the distributed water and with phosphorus which is added as a corrosion inhibitor, in the form of a blended ortho-polyphosphate. When such complexes with sulfur, phosphorus and other minerals are formed in the water it may cause discoloration of processed water. When the very same water meets copper pipes, 'black water' is formed because copper sulfide, which is a black compound, imparts a black color to these insoluble complexes. Documented evidence from Dr Levine's study shows that the color of these sulfur-phosphorus-metal complexes could be golden brown before it enters the domestic circulation, but that it changes to black or gray when it enters the domestic plumbing made of copper pipes or CPVC pipes with **copper** containing fixtures.[10]

Thus the most important scientific conclusion from Dr Levine's technical review in its relation to the formation of black water in the Seven Springs Area is that the processed water from Aloha wells will almost always contain a combination of elemental sulfur and sulfate which can lead to the formation of black water.

Is this a new revelation? Absolutely not! Back in 1991 when Pinellas County was faced with instances of black water, it undertook a research study to explore the possible reasons for black water. This study, which was a master's thesis submitted by Troy Lyn to the University of Central Florida, was perhaps one of the first studies to report an association between **elemental sulfur and black water**. The most important conclusion of that study was **"CHLORINATION**

SHOULD NOT BE USED TO REMOVE SULFIDES IN POTABLE WATER TREATMENT, UNLESS FOLLOWED BY AN EFFECTIVE TURBIDITY REMOVAL PROCESS". This conclusion was reported at the American Water Works Association's meeting in Miami in 1993,[11] the year in which high levels of copper were detected in Aloha's distributed water, even before customers started reporting the 'black water' phenomenon.[12] **This fact and the implications of the observation in relation to black water were well known to FDEP. In fact, one of its staff members Mike LeRoy sent a copy of this article to Mr. John Starling of the PSC, to familiarize the PSC also with this important finding.**[13]

In the hearing that the Public Service Commission held in New Port Richey in 1996 to discuss the complaints of residents from Wyndtree and Chelsea subdivisions, it was reported that the black sediment found in domestic plumbing was copper sulfide.[14] Mr. Porter, the Consulting Engineer of Aloha while describing the cause of black water during that hearing did admit that the processing of raw water with the sole use of chlorine at Aloha's wells did produce **elemental sulfur** along with sulfate. However, instead of associating black water formation with the production of **elemental sulfur** as others had done, **he proposed a theory that it was exclusively due to the conversion of sulfate present in water into hydrogen sulfide by sulfur reducing bacteria and that such a reaction occurred only in the customers' domestic plumbing.**[15] That theory was challenged in 1997 by a Pasco County Utility official whom Rep. Mike Fasano had contacted for information about the incidence of black water in Pasco County. The Pasco Utility official pointed out that **elemental sulfur** was a primary ingredient in the production of black water and that pH adjustment was essential to avoid black water formation. Mr. Porter on the other hand now claimed that **elemental sulfur** was **NOT** produced in Aloha's processing method, contrary to his own previous admission in 1996 and all scientific knowledge at that time about the limitations of the sole use of chlorination as a processing method.[16] His eloquence was so convincing that during the next three years, the Public Service Commission was repeatedly claiming, **"Currently Aloha is converting (i.e. oxidizing) all the sulfide present in water to sulfate by chlorination".**[17] This co-option by Mr. Porter and Aloha of the Regulatory Agencies was to have serious consequences, because the regulatory agencies did not recognize in 1997 that institution of a new method for reducing the black water phenomenon in domestic plumbing was an **urgent necessity.**[18] The customers, were confused by the claim of

Aloha on the one hand that it provides "clean, clear and odor free water" and on the other hand by the expression of its willingness to install new methods that would be accompanied by an increase in water bills of 398%. The customers refused to accept the offer to install packed tower aeration as a method, especially since Aloha insisted that even this expensive new method will not improve water quality.[18]

Now we are a little closer to the truth! Aloha knew all along or should have known that elemental sulfur was present in the water it was distributing and that it would be associated with black water formation. The only way to deal with this truth from Aloha's point of view seems to have been to under report the frequency of black water and use a partial truth to cover-up the whole truth! Aloha used the fact that the only location where copper sulfide formed was the domestic plumbing. That is correct, since copper is necessary to form copper sulfide and the only location in which copper was present in Aloha's distribution system was the domestic plumbing. That would provide Aloha with a necessary disclaimer for not processing the water to the same standards as other neighboring utilities were attempting to do. The Florida State law that maintained that the utility was responsible for the characteristics of the water only as far as the domestic meter came to the rescue of Aloha! There were also other strands of legalism easily available to buttress Aloha's lack of adequate monitoring! There is no law, which requires that Aloha should test the level of hydrogen sulfide in its raw water,[19] or should determine if there was elemental sulfur in the distributed water. All the secondary standards for water quality were based on the limited capacity of human vision, and human sense of smell.[19] **So Aloha could claim quite easily that it met all legal standards – without paying any attention to scientific truths!**[20]

Neither Aloha nor the Regulatory agencies thought it important to ask the question why all the neighborhood utilities were upgrading their methods to aeration or as to why those utilities did not use chlorination as the sole method if that method was enough to provide "clean, clear and safe water" as Aloha continued to claim. Governmental utilities obviously cannot be negligent, because they are responsible to citizens! Aloha did not follow the leads of governmental utilities, because as a **monopoly** its customer base was guaranteed and no regulatory agency was auditing the technical adequacy of its method or contesting its claims of

"clean, clear and safe water"! In fact, Aloha Utilities was allowed to **self-regulate by the FDEP!**[21] Nobody except the customers and their elected representative Rep. Fasano were demanding an independent investigation and improvement in quality of delivered water. Aloha attempted to neutralize them by the accusation that they were "politicizing" water issues![22] Aloha had paralyzed the FDEP by the claim that it met all Federal and State standards[23] and effectively prevented remedial action by the PSC by legal challenges of its decisions. **Law had kidnapped the fundamental rights of citizens to drinkable water!**

Now Aloha realizes that it cannot do that any more! Nor can the FDEP and PSC claim that they do not have the authority, jurisdiction or the responsibility to ensure that Aloha customers deserve better quality water and a 'competitive product'. The judicial system, in the form of the District Court of Appeals has upheld the jurisdiction and responsibility of the PSC to the 'captive customers' of Aloha. **The well-informed customers also have pointed out to the PSC that its legislative mandate is to interpret the Florida statutes of Chapter 367 liberally "to protect public health, safety and welfare".**[24] Further, the customers and the Office of Public Counsel have taken on the burden of proving that the water Aloha distributes contains **elemental sulfur** that is associated with the corrosion of copper pipes and that Aloha may have known this truth all along. **Mr. Porter has vehemently denied there is any elemental sulfur in Aloha's distributed water, because he knew that "the main problems associated with converting hydrogen sulfide to elemental sulfur are related to finished water turbidity increases and the negative effects that increased water turbidity produces like lower disinfection efficiency, increased chance for bacterial contamination and growths in the distribution system etc".**[16] Dr Levine has now established that **elemental sulfur** is formed in all of Aloha's wells and that **elemental sulfur** can be converted to hydrogen sulfide in the distribution system and the domestic plumbing just as well as sulfate.[17] She has specifically mentioned in the Executive Summary of Phase II Report an instance during the sampling procedures where hydrogen sulfide re-formation was detected in the distribution system.[18] We now know that contrary to the **speculations** of the consulting engineer of Aloha, the frequency of complaints about black water bears no correlation with sulfate levels in delivered water.[19] Further, the customers have provided evidence to the PSC that FDEP had information that should have alerted it to the high probability that **elemental sulfur would be produced in**

significant amounts at Well 9 as early as May 1994,[25] even before that well was brought on line. We have provided PSC with all this evidence. We have shown that Chapter 367 of the Florida Statutes had given the PSC the authority and the regulatory responsibility to audit Aloha's facilities even as early as 1996, if it had understood at that time the urgent necessity to do so.

Dr Levine in her recommendations explains that aeration or additional oxidants are very essential for reducing the incidence of black water because of their ability to suppress the activity of anaerobic sulfur reducing bacteria.[26] She even suggests that pH adjustment of processed water will be beneficial. Even before the scientific support that Dr Levine's reports have provided for the need for upgrades in water treatment, the option of pH correction was recommended by PSC staff, but set aside by Aloha.[27]

Much black water has flowed through the domestic pipes of Aloha's customers since they started complaining about the poor quality of water, but at least now we understand that inaccurate and incomplete science has prevented expedient solutions to the black water and foul odor that the customers have been reporting for almost 10 years. **What the technical review of Dr Levine shows is that better quality water could have been delivered in the Aloha water system during the last few years if accurate science, instead of legalism, had been allowed to perform its appropriate role.** Now that we understand what has been happening in the Seven Springs Water System for over a decade, through the application of scientific research methods and analysis of chlorine demand in each of the wells, it is time to move on to the provision of better quality water that can reduce the incidence of black water and foul odor in the homes of the long suffering customers in this area.

Thank you.

V. Abraham Kurien, M.D.

April 8, 2004

REFERENCES

1. Aloha Customers' Petition: PSC Docket No. 020896
2. Pinellas County Study by Troy Lyn
3. INTERAGENCY COPPER CORROSION PROJECT – Final Report, May 2001
4. Pasco County Black Water Study 1998/9
5. Control of Copper Corrosion and Black Water, August 2003
6. Phase II Report by Dr Levine, February 2004
7. Phase I Report by Dr Levine, August 2003
8. Phase II Report by Dr Levine, page 15
9. Phase II Report by Dr Levine, Figure 24
10. Phase II Report by Dr Levine, Figures 25, 28
11. American Water Works Association Proceedings- 1993, Water quality Technology Conference November 7-11, Miami, 1993 Part II pages 981-991
12. Data obtained by Mr. Ed Wood from FDEP
13. Submitted by FDEP Staff member Mike LeRoy to John Starling of the PSC
14. PSC Memorandum Oct.23, 1997, page 6 Docket No 960545-WS
15. PSC hearing 1996: Transcript pages 1012-1026
16. Attachment 1: Oct 23, 1997 PSC Memorandum: Correspondence between Mr Porter and Mr. Bramlett of Pasco County
17. PSC Memoranda, October 1997, December 1998 and October 1999
18. PSC order No PSC-00-1285-FOF-WS
19. Communication from FDEP to Dr Kurien
20. Aloha Water news 1997
21. Jeffrey Greenwell, FDEP Tampa Office, in August 2003 at a CAC meeting
22. Water discoloration Information, Aloha 1997/8
23. Mr. Van Hoofnagle's letter to Dr Kurien July 2002

24. Florida Statutes, chapter 367.011 Jurisdiction; legislative intent

25. FDEP files on Aloha Wells 8 and 9

26. Phase II Report by Dr Levine, Recommendations

27. PSC Memorandum Oct. 1997

(5) **Control of Copper Pipe Corrosion and Black Water. Applicants for a construction** permit to connect a new or altered well to a community water system, except those applicants who have submitted a complete application to the Department before August 28, 2003, shall include in the preliminary design report or design data accompanying their permit application the results of measurements for alkalinity, dissolved iron, dissolved oxygen, pH, total sulfide, and turbidity in a minimum of one sample of raw water from the new or altered well. These measurements may be performed by any authorized representative of the supplier of water or applicant; but field measurements for dissolved oxygen, pH, and turbidity shall be performed following the appropriate procedures in the Department of Environmental Protection Standard Operating Procedures for Field Activities, DEP-SOP-001/01, as incorporated into Rule 62-160.800, F.A.C., and all other measurements shall be performed using an appropriate method referenced in subsection 62-550.550(1), F.A.C., or in *Standard Methods for the Examination of Water and Wastewater* as adopted in Rule 62-555.335, F.A.C. If the result for total sulfide equals or exceeds 0.3 mg/L, the applicant shall do the following:

(a) Provide aeration or other appropriate treatment of the water from the new or altered well to remove total sulfide as necessary. Recommended types of aeration treatment for different water quality ranges are listed in the table below, which is incorporated herein as guidance and not as a requirement. Direct chlorination shall not be used to remove (i.e., oxidize) 0.3 mg/L or more of total sulfide unless the elemental sulfur formed during chlorination is removed.

POTENTIAL FOR IMPACTS WITHOUT TOTAL SULFIDE REMOVAL	WATER QUALITY RANGES	POTENTIAL WATER TREATMENT
Low	Total Sulfide < 0.3 mg/L Dissolved Iron < 0.1 mg/L[1]	Direct Chlorination[2]
Moderate	0.3 mg/L ≤ Total Sulfide ≤ 0.6 mg/L @ pH ≤ 7.2 or 0.3 mg/L ≤ Total Sulfide ≤ 0.6 mg/L @ pH > 7.2	Conventional Aeration[3] (maximum removal efficiency ≈ 40-50%) or Conventional Aeration with pH Adjustment[4,5] (maximum removal efficiency ≈ 40-50%)
Significant	0.6 mg/L < Total Sulfide ≤ 3.0 mg/L @ pH ≤ 7.2 or 0.6 mg/L < Total Sulfide ≤ 3.0 mg/L @ pH > 7.2	Forced Draft Aeration[3] (maximum removal efficiency ≈ 90%) or Forced Draft Aeration with pH Adjustment[4,5] (maximum removal efficiency ≈ 90%)
Very Significant	Total Sulfide > 3.0 mg/L	Packed Tower Aeration with pH Adjustment[4,5] (maximum removal efficiency > 90%)

[1] High iron content raises concern if chlorination alone is used and significant dissolved oxygen exists in the source water. Filtration may be required to remove particulate iron prior to water distribution.

[2] Direct chlorination of sulfide in water in the pH range normally found in potable sources produces elemental sulfur and increased turbidity. Finished-water turbidity should not be more than two nephelometric turbidity units greater than raw-water turbidity.
[3] Increased dissolved oxygen entrained during aeration may increase corrosivity.
[4] Reduction of alkalinity during pH adjustment and high dissolved oxygen entrained during aeration may increase corrosivity. Corrosion control treatment such as pH adjustment, alkalinity recovery, or use of inhibitors may be required.
[5] High alkalinity will make pH adjustment more costly, and use of other treatment may be in order. Treatment that preserves the natural alkalinity of the source water may enhance the stability of finished water.

(b) Provide in the preliminary design report or design data accompanying the applicant's permit application a water quality and treatment evaluation affirmatively demonstrating that the secondary maximum contaminant levels for color and odor will not be exceeded in the water supplier's drinking water distribution system or in water customers' potable water systems.

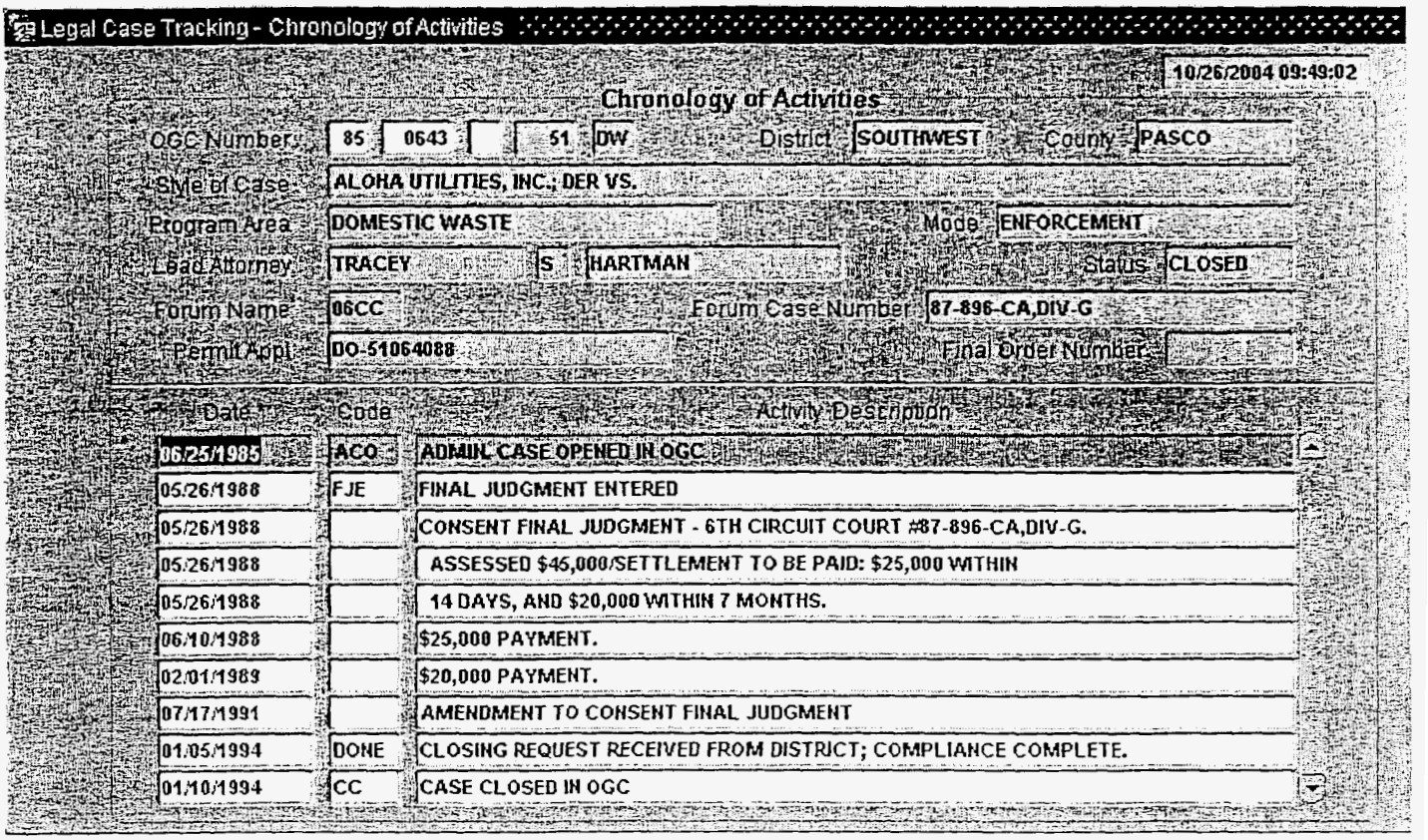
TRANSCRIPT OF
ST. PETERSBURG TIMES
St. Petersburg, Fla.
MARCH 24, 1987, PAGE 1

David Rogers

NEW PORT RICHEY – The State Department of Environmental Regulations (DER) has filed suit against Aloha Utilities Inc., Pasco's largest private Utility, for chronically dumping treated waster water into Holiday's Lake Conley

The DER first warned Aloha about piping effluent into beleaguered Lake Conley more than two years ago, but the agency has held off taking the utility to court in the hope that Aloha would be able to solve its long-term disposal problems.

When asked to respond to the DER's allegations and the remedies the agency seeks, Aloha attorney David Olsen issued a statement through his secretary. It read: "We haven't received any copies of the pleadings yet, but Aloha denies any wrong doing and will vigorously defend the same".



Legal Case Tracking - Chronology of Activities

10/26/2004 09:49:02

Chronology of Activities

OGC Number:	85	0643		51	DW	District: SOUTHWEST	County: PASCO
Style of Case:	ALOHA UTILITIES, INC.; DER VS.						
Program Area:	DOMESTIC WASTE					Mode: ENFORCEMENT	
Lead Attorney:	TRACEY	S	HARTMAN			Status: CLOSED	
Forum Name:	06CC				Forum Case Number:	87-896-CA,DIV-G	
Permit Appl:	DO-51064088				Final Order Number:		

Date	Code	Activity Description
06/25/1985	ACO	ADMIN. CASE OPENED IN OGC
05/26/1988	FJE	FINAL JUDGMENT ENTERED
05/26/1988		CONSENT FINAL JUDGMENT - 6TH CIRCUIT COURT #87-896-CA,DIV-G.
05/26/1988		ASSESSED $46,000/SETTLEMENT TO BE PAID: $25,000 WITHIN
05/26/1988		14 DAYS, AND $20,000 WITHIN 7 MONTHS.
06/10/1988		$25,000 PAYMENT.
02/01/1989		$20,000 PAYMENT.
07/17/1991		AMENDMENT TO CONSENT FINAL JUDGMENT
01/05/1994	DONE	CLOSING REQUEST RECEIVED FROM DISTRICT; COMPLIANCE COMPLETE.
01/10/1994	CC	CASE CLOSED IN OGC

Department of Environmental Protection

Jeb Bush
Governor

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Colleen M. Castille
Secretary

October 26, 2004

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue
New Port Richey, FL 34655

RE: Request for Documents

Dear Dr. Kurien:

This letter is in response to your request for documents concerning a lawsuit filed by DER against Aloha Utilities Inc. in 1987. Review of our legal case tracking system reveals that OGC case number 85-0643 was opened in June 1985. The subsequent court case number was 87-896-CA. A Final Judgment was entered May 26, 1987. It appears from the case chronology that there was an amendment to the Final Judgment in July 1991. After compliance with the judgment was completed, the OGC case file was closed in January 1994 and the file was archived. Since the retention time period for archived files is 4-5 years, the OGC case file for this matter no longer exists. The only thing I am able to provide is a copy of the case chronology from our legal case tracking system.

As I discussed with you during our telephone conversation this morning, you might check with the Clerk of Courts, Pasco County, to see if they still have the court file for this action.

Please contact me if you have questions or need further assistance.

Sincerely,

Laurie Roughton

Laurie Roughton
Research Assistant
OGC Enforcement Section
(850) 245-2268 telephone

Enclosure

cc: Mike Zavosky

Florida Department of Environmental Regulation

Southwest District • 4520 Oak Fair Boulevard • Tampa, Florida 33610-7347

Lawton Chiles, Governor 813-620-6100 Carol M. Browner, Secretary

Reply to: BOX: PWP

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

October 19, 1992

Steven Watford
Aloha Utilities
2514 Aloha Place
Holiday, FL 34691

WARNING NOTICE # 92-074PW51-SWD

RE: Seven Springs Homes
PWS-ID # 6512214

Dear Mr. Watford:

Our records indicate you may not be in compliance with the United States Environmental Protection Agency's new Lead and Copper Rule.:

You have failed to submit a Lead and Copper Tap Water Sampling Plan to the Department. The United States Environmental Protection Agency, through Rule 56-FR-26460, required you to submit a plan showing specific sampling sites (homes or buildings) that meet the criteria of the rule to the Department by June 1, 1992.

PLEASE BE ADVISED that this Warning Notice is part of an agency investigation preliminary to agency action in accordance with Section 120.57(4), Florida Statutes. The purpose of this Notice is to advise you of potential violations and to set up a meeting, or to discuss possible resolutions to any potential violations that may have occurred for which you may be responsible. If the Department determines that an enforcement proceeding should be initiated in this case, it will be initiated through referral to the United States Environmental Protection Agency for appropriate action.

The Department can also resolve any violation through entry into a Consent Order.

Please direct your response and/or questions to Gerald B. Foster of the Drinking Water Section at (813) 744-6100, Extension 431.

Sincerely,

Michael S. Hickey, P.E.
Water Facilities Administrator
Southwest District

MSH/gfm

cc: Pasco CPHU
Richard D. Garrity, Ph.D.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

JUL 26 1993

D.E.R.
JUL 28 1993
SOUTHWEST DISTRICT
TAMPA

REF: 4WM-DWS

CERTIFIED MAIL NO. P 124 044 783
RETURN RECEIPT REQUESTED

Mr. Stephen G. Watford, Vice President
Aloha Utilities, Inc.
Seven Springs Home
2514 Aloha Place
Holiday, FL 34691

RE: NOTICE OF VIOLATION
PWS-NOV-93-30
PWS ID No. FL6512214

Dear Mr. Watford:

The National Primary Drinking Water Regulations promulgated under the Safe Drinking Water Act (Act), 42 U.S.C. §300 et seq. (1974), as amended, require that water systems, serving at least fifteen (15) service connections or twenty-five (25) individuals, monitor for and maintain compliance with maximum contaminant levels (MCLs) and public notification requirements for specific contaminants. The pertinent regulations are contained in Title 40, Part 141 of the Code of Federal Regulations (40 C.F.R. §141, 1992). Copies of these federal regulations may be obtained from:

Peter T. McGarry, P.E., Chief
Compliance and Enforcement Unit
Drinking Water Section
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365
(404) 347-2913

The State of Florida has not yet been granted primacy to enforce the Federal Lead and Copper Regulation found at 40 C.F.R. Part 141, Subpart I. In addition, the State has specifically requested that EPA review the circumstances of your case to consider possible enforcement action. In this circumstance, EPA has primary responsibility for enforcing the requirements of the Lead and Copper Regulation. Your system is required to comply with the applicable provisions of these federal regulations.

Based on information provided, EPA has determined that your water system has not complied with certain applicable laws and regulations regarding the Lead and Copper Regulation that have been

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promulgated under the authority of the Act.

Specifically, our records indicate you are in violation of the following requirements:

- Based on available information, the subject water system failed to report tap water monitoring for lead and copper for the first monitoring period by January 12, 1993, as set forth in 40 C.F.R. §141.90(a)(1).

- Based on available information, the subject water system failed to report tap water monitoring for lead and copper for the second monitoring period by July 12, 1993, as set forth in 40 C.F.R. §141.90(a)(1).

These requirements are necessary to protect the public health of each community and non-transient non-community water system. EPA regards the non-compliance of this system as a serious matter which must not be repeated.

In order for this Agency to fulfill its responsibilities under the Act, you are hereby required, pursuant to §1445(a) of the Act, to notify this Agency within ten (10) days of receipt of this notice, of the action(s) you have taken or will take to come into full compliance with the National Primary Drinking Water Regulations. Specifically, you are required to provide written explanation of the causes of these violations and corrective actions that you have taken or will take (with schedule) to end these violations. Include any and all available data, copies of correspondence between the subject water system and the state and/or local regulatory agencies relating to the Lead and Copper Regulation and other material required by the regulations. This material should be sent to be received by EPA within ten (10) days of your receipt of this correspondence. It should be sent to the attention of Mr. Peter McGarry at the above address. A copy of your response should be sent to:

Dr. Richard D. Garrity, Deputy Assistant Secretary
Southwest District Office, FDEP
4520 Oak Fair Blvd.
Tampa, Florida 33510
(803) 623-5561

Pursuant to §1414(g) of the Act, 42 U.S.C. §300g-3(g), EPA is authorized to issue Administrative Orders to require compliance with the National Primary Drinking Water Regulations. Failure or refusal to comply with such an Order may subject you to an administrative penalty up to $5,000 under §1414(g)(3)(A) and (B) of the Act, 42 U.S.C. §300g-3(g)(3)(A) and (B) or civil penalty of not more than $25,000 per day of violation under §1414(g)(3)(A) and (C), 42 U.S.C. §300g-3(g)(3)(A) and (C).

In addition, EPA can choose to commence a civil action pursuant to §1414 (b) 42 U.S.C. §300 (b) seeking penalties of up to $25,000 for each day in which each violation occurs. Also, an action can be taken pursuant to §1431, 42 U.S.C. §300i (a)(1) in cases which may present an imminent and substantial endangerment. Violation of such an order is subject to fines up to $5,000 for each day of each such violation.

If you have any question regarding the technical aspects of compliance, you should contact Mr. Michael Nieves of the Drinking Water Section at (404) 347-2913.

Sincerely yours,

W. Ray Cunningham, Director
Water Management Division

cc: Mr. Van Hoofnagle, Administrator
Drinking Water Section, FDEP

Dr. Richard D. Garrity, Deputy Assistant Secretary
Southwest District Office, FDEP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

RECEIVED
OCT - 4 1993

REF: 4WM-DWS

SEP 24 1993
RECEIVED
OCT 14 1993
rtment of Environmental Protection
SOUTHWEST DISTRICT

Mr. Stephen G. Watford, Vice President
Aloha Utilities, Inc.
2514 Aloha Place
Holiday, FL 34691

RE: NOTICE OF SHOW CAUSE
PWS ID No. FL6512214 - Seven Springs Homes
PWS ID No. FL6510050 - Aloha Utilities

Dear Mr. Watford:

It has come to the attention of the U.S. Environmental Protection Agency, Region IV that the Seven Springs Home water system and the Aloha Utilities water system operated by Aloha Utilities, Inc. are in violation of the Safe Drinking Water Act (Act). Specifically, the systems have failed to comply with the requirements as specified in the Code of Federal Regulations Part 40, Subpart I (Control of Lead and Copper). Notices of Violation were sent regarding these violations on July 26, 1993. To date, we have not received any response.

Such violations are subject to enforcement action pursuant to Section 1414 of the Act, 42 U.S.C. §300. This Section provides for the issuance of administrative orders, administrative actions to assess penalties and/or the initiation of civil enforcement actions. Therefore, this Agency requests that representatives of the Aloha Utilities, Inc., be present on a teleconference scheduled for October 13, 1993, at 1:15 p.m. to show cause why this Agency should not refer the matter to the U.S. Attorney for initiation of civil or criminal proceedings or institute administrative proceedings to assess penalties. The representatives should be prepared to provide all relevant information with documentation, pertaining to the violations including, but not limited to, any financial information which may reflect your ability to pay a penalty (see attached information needed). Penalties can be sought for up to $25,000 per day per violation per facility. You have the right to be represented by legal counsel. Please provide the telephone number we should call for this teleconference.

IN THE MATTER OF Aloha Utilities, Inc. (Water System) 2514 Aloha Place Holiday, Florida 34691 PWS ID # FL 6512214 Proceedings under Section 1414(g) of the Safe Drinking Water Act, 42 U.S.C. §300g-3(g).	Docket No. PWS-FAO-94-13 FINAL ADMINISTRATIVE ORDER

I.

STATUTORY AUTHORITY

The following findings are made and Final Administrative Order issued under the authority vested in the Administrator of the U.S. Environmental Protection Agency (EPA) by Section 1414(g) of the Safe Drinking Water Act, 42 U.S.C. §300g-3(g) (hereinafter the Act). The Administrator of the Environmental Protection Agency has delegated the authority to take these actions to the Regional Administrator, who in turn, has delegated such authority to the Region IV Director, Water Management Division.

II.

FINDINGS

1. Seven Springs Homes water system (hereinafter System), located in Holiday, Florida, provides piped water to the public for human consumption. The System is supplied by a ground water source and has approximately three-thousand three-hundred seventy-nine (3,379) service connections and serves approximately five-thousand nine-hundred four (5,904) individuals. The System regularly provides piped water for human consumption to either a minimum of twenty-five (25) individuals on a year-round basis or through a minimum of fifteen (15) service connections. The System is a "public water system" within the meaning of Section 1401(4) of the Act, 42 U.S.C. §300f(4), and also a "community water system" within the meaning of 40 CFR §141.2.

2. The System is a "supplier of water" within the meaning of Section 1401(5) of the Act, 42 U.S.C. §300f(5) and is therefore subject to the requirements of Part B of the Act, 42 U.S.C. §300g, and its implementing regulations, 40 CFR Part 141.

3. The System did not request a public hearing on the violations as outlined in the Proposed Administrative Order pursuant to 42 U.S.C.A. §300-3(g)(2).

4. The System is required, but failed, to monitor tap water for lead and copper pursuant to 40 CFR §141.86, during two (2) six-month compliance periods beginning July 1, 1992 and January 1, 1993, respectively.

5. The System is required, but failed, to report specified information pursuant to 40 CFR §141.90(a) for all tap water and water quaility parameter samples within the first ten (10) days following the end of each six-month compliance period specified in 40 CFR §141.86 and §141.87.

6. The System is required, but failed, to report specified information pursuant to 40 CFR §141.31(b), including failure to comply with monitoring and reporting requirements set forth in 40 CFR §141.86, §141.87 and §141.90.

7. The System is required, but failed, pursuant to 40 CFR §141.32(b), to notify persons served by the System of a failure to comply with monitoring requirements for the two (2) compliance periods beginning July 1, 1992 and January 1, 1993.

8. The System is required, but failed, pursuant to 40 CFR §141.32(b)(2) to notify persons served by the System of the System's failure to comply with monitoring requirements for the two (2) compliance periods beginning July 1, 1992 and January 1, 1993. The System was required to provide notice to System users once every three months, for as long as the violation continued.

9. On October 7, 1993 and November 8, 1993, EPA received analytical results of tap water lead and copper monitoring for the six-month compliance period beginning July 1, 1993 and ending December 31, 1993. The System reported an exceedance of the copper action level at 2.39 mg/l (2,390 ppb).

10. On January 20, 1994, EPA received analytical results of water quality parameter monitoring for the six-month compliance period beginning July 1, 1993 and ending December 31, 1993. The System submitted water quality parameter analytical results ten days late.

11. The State of Florida has not received Lead and Copper primacy approval from EPA. In this circumstance, EPA has primary responsibility for enforcing the requirements of the Lead and Copper Regulation.

III.

ORDER

Based on the foregoing findings and pursuant to the authority of Section 1414(g) of the Act, I HEREBY ORDER that:

1. The Final Administrative Order shall take effect upon receipt.

2. The System shall comply with all the requirements as specified in the Act and 40 CFR Part 141, Subpart I (Control of Lead and Copper).

3. The System shall report for the six-month compliance period beginning July 1, 1993, a certification that each tap sample collected by the residents was taken after the System informed them of proper sampling procedures for the first round as specified in 40 CFR §141.86(b)(2).

4. The System shall report the location of each site and criteria under which the site was selected for the system's sampling pool for the six-month compliance period beginning July 1, 1993, in accordance with 40 CFR §141.86. If the System was unable to complete its targeted sampling pool with tier 1 sites, the system shall send a letter to EPA justifying its selection of tier 2 and/or tier 3 sampling sites in accordance with 40 CFR §141.86(a)(4), §141.86(a)(5) and/or §141.86(a)(7).

5. Because the results of the 90th percentile copper level exceed 1.3 mg/l (1300 ppb), the System shall comply with all the requirements for water quality parameter (WQP) monitoring and reporting as specified in §141.87, §141.89, and §141.90 and for source water monitoring and reporting as specified in §141.88, §141.90. Specifically under this Order, the System, within thirty (30) days of the effective date shall:

   (a) Collect one (1) source water sample for lead and copper analyses from each entry point to the distribution system, in accordance with 40 CFR §141.88(a) and §141.88(b).

   (b) Have samples analyzed by an EPA or State-certified laboratory using the analytical methods specified in 40 CFR §141.89.

6. Because the results of the 90th percentile copper level exceed 1.3 mg/l (1300 ppb), the System is required to recommend Optimal Corrosion Control Treatment in accordance to 40 CFR §141.81(e)(1) and §141.82(a). The System shall submit recommendations for optimal corrosion control treatment, pursuant to 40 CFR §141.82, no later than May 1, 1994.

   Enclosed please find the following forms regarding optimal corrosion control treatment recommendations: Table 3-6, "Checklist for PWS Desk-Top Evaluations," and Form 141-C, "Desk-Top Evaluation Short Form for Small and Medium PWS Treatment Recommendations." If you choose to utilize these forms when submitting the corrosion control treatment recommendations, this will assist EPA in providing a more thorough and timely review. The guidance for the preparation of these forms is found in EPA's "Lead and Copper Guidance Manual-Volume II: Corrosion Control Treatment."

7. The System shall send EPA and the State a copy of all reports required under 40 CFR Part 141, Subpart I, and such reports shall be provided by certified mail to:

   Peter T. McGarry, P.E., Chief
   Compliance and Enforcement Unit
   Drinking Water Section
   U.S. Environmental Protection Agency
   345 Courtland Street, NE
   Atlanta, Georgia, 30365

   and

   Dr. Richard D. Garrity, Director
   District Management
   Florida Department of Environmental Protection
   Southwest District Office
   4520 Oak Fair Blvd.
   Tampa, Florida 33510

8. Within thirty (30) days of the effective date of the Final Administrative Order, the System shall issue a written public notice in accordance with 40 CFR §141.32(b) to all water system customers notifying them of past failure to monitor tap samples for lead and copper during the six-month compliance periods beginning July 1, 1992 and January 1, 1993. The System shall issue the written notice by publication in the local newspaper and by mail delivery (by direct mail, by hand delivery or with the water bill) in accordance with 40 CFR §141.32(b) and (d) to all water system customers.

   A copy of each type of public notice shall be sent to EPA at the above address no later than seven (7) days after issuance. In addition, the System shall provide EPA with the date and method of issuance of all public notices provided to users of the system for the aforementioned violations cited in Section II of this Final Administrative Order.

9. In the future, the System shall perform public notification in accordance with 40 CFR §141.32 to all users regarding any failure to comply with any treatment technique or monitoring requirements in 40 CFR Part 141, Subpart I (Control of Lead and Copper).

10. The Final Administrative Order will remain in effect until the public water supply system has demonstrated compliance and EPA has issued a Closure Letter.

IV.

GENERAL PROVISIONS

1. Neither the Proposed Administrative Order nor the Final Administrative Order constitutes a waiver, suspension, or modification of the requirements of National Primary Drinking Water Regulations or of the Safe Drinking Water Act, which remain in full force and effect. Issuance of an Administrative Order is not an election by the United States Environmental Protection Agency to forego any civil or any criminal enforcement action otherwise authorized under the Act.

2. Neither the Proposed Administrative Order nor the Final Administrative Order relieves the System of any responsibilities or liabilities established pursuant to any applicable federal or state law or regulation.

3. Any person who violates, or fails or refuses to comply with the Final Administrative Order may be subject to an administrative civil penalty of up to $5,000 under Section 1414(g)(3)(B) of the Act, 42 U.S.C. 300g-3(g)(3)(B) or a civil penalty of not more than $25,000 per day of violation, assessed by an appropriate United States district court, under Section 1414(g)(3)(A) and (C) of the Act, 42 U.S.C. 300g-3(g)(3)(A) and (C).

Dated this 11 day of MAR, 1994

W. Ray Cunningham, Director
Water Management Division
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE
Atlanta, Georgia 30365

DOCKET NOS. 950615-SU AND 960545-WS
FEBRUARY 6, 1997

ISSUE 5: Is the quality of service satisfactory?

RECOMMENDATION: The quality of service provided by Aloha's water system is unsatisfactory. The quality of service provided by Aloha's wastewater system is satisfactory. Staff recommends that the utility be required to immediately begin planning for the construction of treatment facilities for the removal of hydrogen sulfide from its supply wells. Aloha should be ordered to evaluate the best treatment technologies available for the removal of hydrogen sulfide and file a report with the Commission within three months which summarizes its findings. At a minimum, the report should provide the following information for each treatment alternative which will be evaluated: the hydrogen sulfide removal efficiency, an estimate of the capital costs, an estimate of expected increases in operation and maintenance expenses, and the expected impact on the customer's rates. Staff recommends that the Commission place Aloha on notice that failure to complete the report within three months could, pursuant to Section 367.161(2), Florida Statutes, result in a fine of up to $5,000 per day. (MCROY, STARLING, JAEGER)

POSITION OF PARTIES

UTILITY: Yes.

FASANO: Adopts position of OPC.

OPC: No. The utility's failure to permit the customers' representative to sample the raw water well(s) is indicative of poor quality of service. The customers' request was tendered in writing on August 16, 1996, and by oral request well before that. Little prejudice or inconvenience would have inured to the utility, had the sampling been permitted. The customers, many of whom the record will show are afraid to drink the water, could have benefited from a disinterested testing of the water. The request was modest; good quality of service demands that a utility honor such an unobtrusive request.

STAFF ANALYSIS:

In accordance with Rule 25-30.431(1), FAC, staff's recommendation on the overall quality of service provided by Aloha is derived from the evaluation of three separate components of the water and wastewater operations: (1) Quality of the Utility's Product, (2) Operational Condition of the Utility's Plant and

Facilities, and (3) Attempts to Address Customer Satisfaction.

Quality of the Utility's Product

Water

DEP witness Screnock, an inspector with DEP's Southwest District Office, testified that although Aloha has exceeded the action level for copper (from water samples drawn at the customers' cold water tap), it is in compliance with DEP's rules since it has implemented a corrosion control program. (TR 566-567, 591-592) Mr. Screnock testified that Aloha is in compliance with Federal and State drinking water standards for the other primary, secondary, and organic contaminants. (TR 562-563) Mr. Screnock testified that Aloha failed to provide lead and copper samples which should have been collected during the first six-month period of 1993. (TR 576) At that time, however, DEP did not have jurisdiction over lead and copper testing and referred Aloha to EPA for enforcement. (TR 576)

The utility's corrosion control program consists of the addition of a corrosion inhibitor and an ongoing and aggressive flushing program. (TR 564) Mr. Screnock testified that Aloha's corrosion program is one of the standard treatments to control copper levels. (TR 590-591) Mr. Screnock stated that Aloha is not in violation of the lead and copper rules since these rules allow the utility two years to address the copper problem and that, at this time, DEP has no enforcement tool or authority to require Aloha to do anything before December 1997. (TR 592, 574)

In January 1996, the DEP started receiving complaints about black water from Aloha's customers in the Chelsea subdivision. (TR 564, 581) These did not appear to be average complaints and the DEP met with the homeowners association to find out more about the problem. (TR 581) Since the customers did not appear to trust Aloha, DEP tested the black water. (TR 581) Mr. Screnock collected samples of the black water and state laboratory analysis determined that the black residue was copper sulfide. (TR 564, 582)

Utility witness Porter testified that the copper sulfide is forming within the customers' homes and is not found in Aloha's source of supply. (TR 1013-1026) Mr. Porter believes that the copper sulfide problem is concentrated in a small area of Aloha's territory. (TR 1012) Mr. Porter testified that Aloha's source water does not contain copper, a statement which is corroborated by

July 23, 2003

Marshall Willis
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Dear Marshall:

It is my understanding that for practical reasons, Aloha Utilities is seeking to have the Commission amend some of the requirements of Order No. PSC-02-0593-FOF-WU. Specifically, Aloha seeks to change: (1) the current deadline for completion of the removal projects for wells 8 and 9; (2) the requirement that the utility begin planning removal projects for wells 1-7; and (3) the requirement that 98% of the hydrogen sulfide be removed from all sources of raw water. I have been in touch with Aloha's Citizens' Advisory Committee and can report their position on these three issues.

As to the deadline for completing all remedial additions to wells 8 and 9, the customers want and expect to have a voice in the determination of which changes should be made. As the Commission is aware, the Advisory Committee is involved in an audit being performed by Dr. Levine of the University of South Florida. Until Dr. Levine's audit findings have been completed, the Advisory Committee cannot reach a conclusion as to the proper remedial actions for wells 8 and 9. As a result, the Advisory Committee strongly advises that Aloha refrain from expending any significant amount of funds to reduce hydrogen sulfide levels at wells 8 and 9, until the Citizens' audit is complete. The Advisory Committee is aware that this position may require that the current deadline be adjusted. The Advisory Committee does not object to an appropriate adjustment of the deadline date.

The Advisory Committee also believes that any remedial actions should first be implemented on wells 8 and 9 only. After an analysis of the results on those two wells, a decision on the remaining seven wells would be in order. This approach means that, for the present, Aloha should not expend any money for changes to wells 1 through 7.

As to the 98% removal requirement, the Advisory Committee agrees that this standard should be removed, and replaced with other standards. Rather than a percentage removal, the standard(s) should focus on the level to be attained. One such standard is a maximum total sulfide level of 0.1 mg/L in the "finished water." This performance standard is applied by the West Coast Regional Water Supply Authority for the water it supplies to its member governments. Additional standards may also be appropriate, depending on the final audit findings. Until the final audit report, however, no other measurable standards can be specified.

One further concern needs to be discussed and clarified. It is Aloha that is seeking to amend these three areas which have withstood an appellate challenge to their legitimacy. The Citizens successfully fought alongside the PSC to assure that Order No. 0593 was upheld. The customers' current willingness to join Aloha in requesting these three amendments, therefore, demonstrates a spirit of extreme cooperation. In return, the customers expect Aloha's full cooperation with Dr. Levine in any sampling or data gathering she may need to undertake. I am sure you agree that with their show of good faith, the customers are entitled to reciprocation.

I hope this letter clarifies our position on the three areas in which Aloha seeks to amend Order No. 0593.

Sincerely,

Stephen C. Burgess
Deputy Public Counsel

SCB/dsb

cc: Marty Deterding, Esquire

NO OBJECTION STATEMENT
FROM
ALOHA UTILITIES CITIZENS' ADVISORY COMMITTEE

1. Whereas, Aloha Utilities Inc. has presented cogent arguments as to why the Florida Public Service Commission's order for the removal of 98% hydrogen from source water is not technically feasible at all ranges of hydrogen sulfide, on behalf of the customers of Aloha in the Seven Springs Area, **Aloha's Citizens' Advisory Committee** is prepared to state that it has NO OBJECTION to the prescription of a maximum total sulfide level of 0.1mg/L in 'finished' water as an alternate benchmark for Aloha Utilities. This is a performance standard accepted by the West Coast Regional Water Supply Authority for the water it supplies to its member governments.

[However, this will not be the only standard for finished water, because the audit that is being currently undertaken may reveal other deficiencies. The customers suspect that there is elemental sulfur in the delivered water and also ionized sulfide, both of which are corrosive. There may also have to be a standard related to the disinfection of water such that it is effective against sulfur reducing bacteria.]

2. Whereas Aloha Utilities desires to have institution of appropriate methodologies to achieve the above standard in a step by step fashion rather than by simultaneous implementation at its wells, **the Aloha's Citizen Advisory Committee** states that it has NO OBJECTION to the placement of appropriate equipment initially at **Wells 8 and 9** and subsequently at other wells on the basis of experience gathered.

These NO OBJECTION statements should in no way be considered as a permit from the customers of Aloha Utilities in the Seven Springs System to Aloha Utilities to install and maintain new methods for water processing or as a consent order that the customers are accepting financial responsibility through rate increases for the installation and maintenance of any particular method.

In its turn, Aloha Utilities shall facilitate without delay or restrictions an expedited and comprehensive audit of the present processing methods, the facilities that are available and the current finished product. Aloha Utilities shall also supply CAC with a specific cost analysis relating to the installation and maintenance at **Wells 8 and 9** of technology considered appropriate to improve the quality of 'finished' water so that the CAC can determine the cost effectiveness of proposals for the solution of the current problems associated with water quality.

When Aloha Utilities meets these conditions, the CAC will consider its next step.

Wayne Forehand

Chairman, Aloha Utilities Citizens' Advisory Committee

July, 21, 2003

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-53
Page 1 of 2

Subject: Aloha Utilities
From: "Wayne Forehand" <wayne9@worldnet.att.net>
Date: Wed, 28 May 2003 08:15:57 -0400
To: "Joe Walla" <corbilate2@bigzoo.net>, "Bob Taylor" <Taylorb@sanctum.com>, "Louis Swentek" <louis.swentek@worldnet.att.net>, "Barry Semansky" <barefax@tampabay.rr.com>, "Herb and Mary Powell" <flsun93@earthlink.net>, "Joe Lynch" <jlynch9@tampabay.rr.com>, "Bill Humphrey" <bill.humphrey@earthlink.net>, "Donna Vaurio" <donnaanddavid.vaurio@verizon.net>, "Abe Kurien" <akurien@attglobal.net>, "Bill Crean" <billcrean@netzero.net>, "Bill Day" <wday@welbilt.com>, "Charles Hise" <chise@tampabay.rr.com>, "Dave Rowan" <Dave@Rowan.com>, "Dick Wiltsey" <dickkkna2@bigzoo.net>, "Ed Wood" <eow3rd@gte.net>, "Glenn Van Doren" <gandpvd@aol.com>, "Harry Hawcroft" <hhawcroft@att.com>, "Marilyn Lambert" <cwlandmjl@msn.com>, "Sandy Mitchell" <floridatrap@att.net>, "Terry Stoermer" <two4thebirds@earthlink.net>, "Charlie Johnson" <charlienellen@gbronline.com>, "Bill Coogan" <cooganfl@aol.com>, "Charles Rifkin" <swdon@Earthlink.net>, "Liz Nardi" <lnardi23@aol.com>, "Sandy Y" <SandyWhy1@aol.com>, "Mike Newsome" <mnewsom2@tampabay.rr.com>, "Vince Corelli" <rovine@gte.net>

I am forwarding the following in case any of you missed it in the SPTimes.

Info only!

From: Wayne Forehand in Trinity, Florida where it is always sunny and wonderful!

St. Petersburg Times

Aloha Utilities requests rehearing on rate increase Series: PASCO DIGEST
St. Petersburg Times; St. Petersburg, Fla.; May 24, 2003;

Abstract:
Aloha Utilities Inc. has requested a rehearing before the 1st District Court of Appeal in Tallahassee, saying the court wrongly affirmed a regulatory board's April decision denying the company a 55 percent rate increase.

Full Text:
Copyright Times Publishing Co. May 24, 2003

(ran PW, PS editions)

Aloha Utilities Inc. has requested a rehearing before the 1st District Court of Appeal in Tallahassee, saying the court wrongly affirmed a regulatory board's April decision denying the company a 55 percent rate increase. Aloha says it needs additional revenue to comply with a Southwest Florida Water Management District demand that it stop overpumping wells and buy water from Pasco County. By upholding a Public Service Commission order that rejected the increases, and required Aloha to improve its water system, the court effectively created a "conflict we think is an issue they either did not understand or did not recognize," Aloha attorney F. Marshall Deterding said. State Sen. Mike Fasano, R-New Port Richey, blasted the decision to seek a rehearing. "Aloha has once again demonstrated that is has absolutely no regard for its customers," he said in a statement. Aloha serves 9,000 customers - including Fasano - in the Seven Springs and Aloha Gardens areas of southwest Pasco.

St. Petersburg Times June 21st 2003

Upgrades to water system upheld

■ A district court rejects Aloha Utilities' appeal of a regulatory order to make improvements as well as its proposal for a 55 percent rate increase.

By ALEX LEARY
Times Staff Writer

NEW PORT RICHEY — Aloha Utilities Inc., which provides water to thousands of Pasco County residents, has lost its fight against a regulatory order requiring it to make significant improvements to its system.

In denying the utility's motion for a rehearing, the 1st District Court of Appeal affirmed its earlier decision to uphold a April 2002 Public Service Commission order calling for the upgrades and rejecting Aloha's request for a 55 percent rate increase.

"I don't know what to say except that I'm extremely disappointed," Aloha attorney F. Marshall Deterding said Friday. "We believe to this day that this was a very clear case of abusive discretion on the PSC's part."

But he said Aloha was prepared to move forward and would not attempt to fight the order further in court, conceding that the appeals process was exhausted.

Aloha, Deterding said, has begun working out how it will credit customers with about $142,000 that was part of an interim rate increase granted last year.

More important, perhaps, the company will look into how to build a new treatment plant to resolve customer complaints about filthy, foul-tasting water. Deterding said that he did not know exactly how much that could cost but that it would be several million dollars.

Also under the PSC order, the company is required to improve customer service and create a citizen advisory board.

"Even though we have not yet won the war with

Please see **UPGRADES** Page 9

Upgrades

from Page 1

Aloha, it's certainly a battle we have won," state Sen. Mike Fasano, R-New Port Richey, said Friday.

"The court has upheld what the people in the service area have been saying, and that is Aloha does not deserve any rate increase while they provide poor water and poor quality of service."

Fasano is a customer of Aloha, which serves about 9,000 people in the Seven Springs and Aloha Gardens areas of southwest Pasco.

Deterding said the company already is in a tough financial position and could face additional strain with the improvements.

The company is fighting demands by the Southwest Florida Water Management District that it buy water from Pasco County to avoid overpumping its wells. Aloha said the 55 percent rate increase was justified because the company would have to spend hundreds of thousands to buy the water. But the PSC found the evidence unpersuasive.

— Alex Leary can be reached in west Pasco at 869-6247 or toll-free at 1-800-333-7505, ext. 6247. His e-mail address is leary@sptimes.com.

In his direct testimony, utility witness Watford testified that the primary reason for this rate case being filed was because Aloha must obtain all water above its SWFWMD permit levels from Pasco County. He states that in the past, the regulatory authorities have not been strict in requiring Aloha to conform completely to the water use permit (WUP) limitations. Mr. Watford stated that in the last year and a half that has changed. SWFWMD is now strictly requiring that Aloha limit its withdrawals for raw water to the levels authorized in its permit. He further testified that SWFWMD has also refused to allow an increase in the permit withdrawal levels leaving Aloha with no choice but to purchase additional water from Pasco County for the foreseeable future. (TR 492-493)

Witness Watford testified that the Pasco County bulk water rate is higher than it should be. He testified that Pasco County sets its rates annually. He stated that there is no new thing that has been negotiated because there is not anything new. That is Pasco County's rate. However, he stated that he had no problem seeking a lower rate from Pasco County however they could get that. (TR 526-528)

Utility witnesses Watford and Porter both testified that it was necessary for Aloha to come into compliance with its SWFWMD WUP and that there was no alternative in the short-term to meet the permit except by purchasing water from Pasco County. Witness Watford also testified that no other alternatives were presented. (TR 546 & 420) SWFWMD witness Parker testified that in 1998, Aloha submitted a permit application to renew its WUP. During the renewal process, potential alternative water sources other than new groundwater were discussed, including additional water conservation measures, desalination, aquifer storage and recovery, and interconnection to other water suppliers. At the time, Aloha rejected as infeasible all alternative water source options except additional water conservation measures, reuse supply opportunities, and interconnection to Pasco County. **(TR 564)**

SWFWMD witness Parker testified that Aloha began to consistently exceed the permitted annual average day withdrawal in 1996 as early as 1994. During the 1998 permit renewal process, SWFWMD's understanding was that Aloha would begin to utilize the interconnect with Pasco County and bring its existing withdrawals into compliance. The over pumping continued and compliance notices were issued by the SWFWMD in 1999 and 2000. A Notice of Violation was issued on November 21, 2000, and a consent order was proposed

on January 5, 2001. (TR 557-559) The final consent order contains a compliance plan. (TR 589)

Witness Parker testified as to the current WUP held by Aloha Utilities. The permit is number 203182.004 and was issued on April 27, 1999. It authorizes the withdrawal of 2,040,000 gallons per day on an annual average daily basis and a peak month day withdrawal quantity of 2,470,000 gallons per day. Aloha pumps groundwater from the Florida aquifer, using eight production wells distributed throughout the service area. Compliance is measured by using a 12-month running average. Aloha is not currently in compliance with its SWFWMD WUP. Witness Parker stated that Aloha must find a source of water to replace the groundwater quantities it is currently withdrawing in excess of the quantities authorized by the WUP. Aloha may do this by purchasing the excess quantity from Pasco County through the interconnect or by developing an alternative water source such as a reverse osmosis facility or other source of water that is both economically and technically feasible and permittable. (TR 562-568)

In answer to a question, witness Parker stated that the wells that Pasco County is currently using are stressed, so those well fields are subject to a reduction plan, and will eventually be reduced by as much as 40 percent in their withdrawals by 2008 or 2010. Mr. Parker further stated that the first increment in the reduction will begin in 2003 when the first alternative water sources comes on-line. (TR 602-603)

Witness Parker, under questioning as to the impact of utilizing Pasco County wells instead of Aloha's wells stated, "[w]hether or not the redistribution of that withdrawal from where it's taking place at Aloha to one of those wellfields would be a net benefit, I couldn't really say right now." (TR 604) Witness Parker stated further, "[s]o in the immediate term, I couldn't tell you whether it's a net improvement or not to shift it." (TR 604)

In late-filed exhibit 18, which is a response letter to a question from a Commissioner, SWFWMD witness Parker states that the District contends that there are benefits from requiring Aloha to immediately begin purchasing water and gives a description of how the regional water system is laid out. He states that the regional water supply authority offers the greatest potential to meet the increasing demands for water from multiple regional sources which can be managed with acceptable environmental impacts. Mr. Parker

November 1, 2004

V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue
New Port Richey, Florida 34655

Subject: Aloha Utilities, Inc.

Dear Dr. Kurien:

In your letter dated October 19, 2004, you requested that the Southwest Florida Water Management District (the District) provide you with information concerning Aloha Utilities, Inc.'s (Aloha's), compliance with Consent Order SWF 02-15 (the Consent Order).

The Consent Order was approved by the District Governing Board on February 26, 2002, to resolve overpumping violations by Aloha. The Water Use Permit (WUP) issued by the District authorizes Aloha to make annual average withdrawals of 2,040,000 gallons per day. Aloha has been exceeding the quantities authorized by the current WUP and the preceding WUP.

The Consent Order required Aloha to implement a Compliance Plan, containing details on short-term measures to achieve compliance such as conservation programs and the purchase of water from Pasco County, and long-term measures such as the development of alternative sources. The Consent Order also required Aloha to pay $1,000.00 in District enforcement costs, which has been received by the District. It further assesses a penalty of $439,554.45, which would be reduced if Aloha successfully completed feasibility studies for alternative water sources, or waived entirely if Aloha constructed an appropriate alternative water source.

Aloha successfully implemented customer conservation measures, including billing inserts, toilet retrofit kits, a toilet rebate pilot program and report, a mixed media campaign, and a website. The Feasibility Study for the reverse osmosis plant as an alternative supply was submitted on time, and is under review by District staff to determine if it was conducted in good faith.

Aloha failed to comply with the provision of the Consent Order requiring compliance with the Permit. Aloha has continued to exceed the withdrawal quantities authorized by the Permit. Aloha recently entered into a bulk water supply agreement with Pasco County, which should serve as a basis for Aloha to come into compliance with the WUP.

Aloha's failure to comply with the Consent Order resulted in the District filing a complaint in circuit court to enforce the Consent Order. The parties are presently involved in settlement negotiations, and have stipulated to a stay of the litigation until

December 1, 2004.

Please feel free to contact me if I can be of any further assistance.

Sincerely,

Margaret M. Lytle
Senior Attorney

cc: John Wharton
Gene Heath
Mark Lapp

DPEC David W. Porter, P.E., C.O.
Water and Wastewater Engineering Consultants

**Regulatory Assistance;
Process Troubleshooting;
System Design, Permitting,
Construction Observation;
Forensic Engineering,
Expert Witness Testimony;
Rate Case Support**

June 5, 2002

Mr. V. Abraham Kurien, M.D.
1822 Orchardgrove Avenue
New Port Richey, FL 34655-4716

Re: Aloha Utilities, Inc.
Seven Springs Water System

Dear Dr. Kurien:

My client, Aloha Utilities, Inc., has requested that I respond to your letter of April 9, 2002 which provides your "conclusions about the 'black water' problem customers of Aloha Utilities have been experiencing for many years." Attached to your letter was another letter which you had sent to Representative Fasano and copied to the Public Service Commission and the Office of Public Counsel.

First, let me say that I appreciate the fact that you are a medical doctor and therefore have been schooled in chemistry as it applies to medicine. However, water chemistry is a specialized field, requiring not only specialized education and training, but a great deal of experience to fully understand. Your letter to Representative Fasano contains a number of assumptions and conclusions that I believe are incorrect and that do not agree with the large number of water treatment experts that have studied this issue for many years. I am sure that you will appreciate the importance of accuracy in this situation. Offering the decision makers incorrect conclusions drawn from the misdiagnosis of the problem could lead to the expenditure of large sums of money in building ineffectual or inefficient physical plant at substantial long run cost to the Utility, and therefore, its customers.

Below I provide comments related to each of the points you discussed in your letter to Mr. Fasano:

1. You stated that the recent unannounced testing of water at the homes in Aloha's service area showed that residual sulfides did exist in the water delivered by Aloha.

   I have spoken to Mr. Hoofnagle and obtained a copy of the tabulation of the testing results. Based on the comments you have made in several of your letters where you discussed and/or interpreted the results, it became readily apparent that you have misunderstood this data. The data shows that the concentration of sulfide found in the 30 homes ranged from 0.00 mg/L (for 12 homes) to 0.04 mg/L (for 2 homes). These concentrations are inconsequential and would be considered 0 for the purposes of this analysis by water treatment experts. What you evidently do not understand is that all water testing methods have some intrinsic inaccuracy when you approach 0 concentration. The point at which the test method is no longer accurate is called the "Minimum Detection Limit (MDL)" and the repeatability of a method is represented by its Standard Deviation value. For the testing method utilized here, the MDL is 0.01 mg/L with a repeatability (Standard Deviation value) of 0.02 mg/L. It is important to note that the MDL and the Standard Deviation values published for the test method represent the "best case" scenario (i.e.: use of fresh reagents, controlled laboratory testing conditions, expert technique, very clean glass ware, etc.) which are frequently not found in field testing situations (as was undertaken here). I spoke with the manufacturer of the testing equipment used and they reported that the 0.01 average value found during the testing should be reported as 0 mg/L based on their published accuracy and repeatability data for the kit. In addition, the test method used in this analysis was not certified by the USEPA for use in testing the sulfide concentration of drinking water. Therefore, the method chosen to determine the level of sulfides was not appropriate for use in this situation.

There were several other problems with the testing program undertaken. Among them was that the water was not taken from the point of entry to the home at the meter. When I spoke with Mr. Hoofnagle I was told that the water samples were taken from hose bibs attached to the sides of the homes. You may not be aware of this fact, but, the location from which the samples were taken invalidates the use of the data. This is because as the water resides in the home water piping, some conversion of sulfates to sulfide is not uncommon. The quantity of sulfides generated in this way may be very small, just as you found. The water should have been sampled at the meter if you wanted to determine the actual quality of the water delivered by Aloha. The water tested was not therefore representative of the water delivered by Aloha.

A review of the chlorine residual data taken with the sulfide data, shows a substantial variation in the concentration of chlorine residual from home to home where the samples were taken. In fact, the data shows that the chlorine residual from home to home, closely situated on the same street varied a great deal. This shows that either the testing was flawed or that the water samples obtained from each home were not representative of the water being delivered from the water mains in the street. Since the person who actually did the analysis routinely undertakes chlorine residual testing, I have no reason to doubt the testing. Therefore, the variability in the chlorine residual results shows that the samples taken from the home hose bibs were not representative of the water being delivered by Aloha. Since the same samples were used to determine the sulfide concentrations, this shows that the samples taken for sulfide were also not representative.

Based on the conditions of the test and the inherent accuracy of the test method, no sulfides were found in the water delivered by Aloha. This unannounced testing program has once and for all shown that Aloha's water does not contain sulfides, and therefore, also shows that sulfides are being generated in the homes of some of the customers as Aloha and many water treatment experts have contended for many years. The generation of hydrogen sulfide in home hot water units is a well documented fact that has been known for many, many years. It is common knowledge in the water industry.

2. Since the data shows that there is no meaningful or significant sulfide being delivered in Aloha water, your theory that there is a "diffuse and universal type" of black water problem caused by hydrogen sulfide being delivered by Aloha has no basis in fact. The vast majority of Aloha's customers, system wide, do not report any black water problem. The problem has been reported by a limited number of customers. I have personally visited many of the customers that have reported the problem over the years. In a limited number of cases, I did witness copper sulfide flowing from a tap inside the home, however, in the majority of these cases the homeowner had installed an on-site water treatment unit that effectively changed that water chemistry of Aloha's water. Many of the visits I have made to customer's homes resulted in the inability of the customer to produce any black water in their home what so ever.

Often, when the customer could not produce any black water, I was taken to a bathroom where the customer lifted the toilet water reservoir cover and showed me some discoloration (of various colors) on the inside of the reservoir; this type of discoloration is normal and common and is in no way related to copper sulfide. However, as you may have heard in the hearings, many customers have testified that they are affected by the "black water" problem based solely on this toilet tank reservoir discoloration. This fact illustrates that a substantial amount of incorrect information has been circulated relative to this issue. To add any more to that already present only serves to hinder the resolution of the problem and ultimately leads to increased costs for the Utility and the customers.

There has been a substantial quantity of data produced related to this issue in the last 6 years. Quite a lot of this data was produced by State of Florida agencies and study groups. All of the work by all of these various groups and experts has agreed that the black water problem is caused by the generation of hydrogen sulfide from sulfate within the home of a limited number of customers, many of which have on-site water treatment systems that change the chemistry of the Utility's water.

3. In the water treatment industry, water disinfection is practiced. Disinfection is defined as a process where pathogenic organisms are killed to protect human health. At least one of your recent letters has proposed "sterilization" of the water as a potential solution to the black water problem. Sterilization, the killing of all living organisms is not practiced in the water industry because it would be cost prohibitive if not technically impossible to accomplish. Therefore, a number of organisms can be found in all drinking water. Sulfur reducing organisms are plentiful in nature and found naturally in water supplies. The relative number of these organisms is reduced by chlorination, however, it is not possible to kill all such organisms in a water system. However, when a homeowner passes the utilities water through a home treatment system, the chlorine added by the utility is removed. Once this chlorine is removed, the remaining sulfur reducing bacteria grow and multiply. The rate at which these organisms multiply is related to a number of factors such as the temperature of the water and the presence of an energy source for biological metabolism. The reported incidence of hydrogen sulfide odor occurs more in home hot water systems than the cold water systems. Since the generation rate of hydrogen sulfide is greater in hot water systems this also explains why the reported incidence of black water (copper sulfide) occurs most often in hot water systems.

This is why Aloha and a number of water treatment experts (including FDEP staff members) have repeatability testified that the use of home treatment systems is one of the factors that exacerbates the black water problem. Many other factors also exacerbate the problem. These factors include such things as infrequent flushing of hot water tanks (as outlined in hot water tank manufacturer's handbooks), the length of time water is allowed to stand idle in the home without use (allowing for the maximum growth of sulfur reducing bacteria and the generation of hydrogen sulfide), etc.

Dr. Kurien, your letter makes statements that infer that the entire water industry has not addressed hydrogen sulfide control in a scientific manner. I can assure you that I, and the tens of thousands of individuals who have chosen to make the water industry our career, would differ with your opinion. Numerous water treatment experts have conducted scientific studies related to this problem over the last 6 years. These studies were conducted by not only the Utility and its consultants but also by the FDEP, the University of Florida, the Florida Department of Community Affairs and others.

Your statement "The elimination of sulfides and sulfate reducing bacteria from distributed water before it enters the domestic supply is essential for remediation of the problem" shows that your understanding of this issue is quite simplistic. Even if the levels of sulfide you reported were correct, they would represent values that any water system would be proud to exhibit in their water. If I were asked to design the most technologically sophisticated treatment plant possible utilizing the best in current technology I would not expect to see sulfide values lower than those you are quoting. To accomplish what you have stated is not technically or financially feasible.

I hope that this letter assists you in better understanding the problem and the work completed to date to study and develop corrective actions that are feasible.

Sincerely yours,

David W. Porter, P.E., C.O.
Engineering Consultant

Cc: Mr Stephen G. Watford, President/AUI
Mr. Marshall F. Deterding, Esquire/RS&B
Blanca S. Bayo/Public Service Commission
Ralph Jaeger, Esquire/Public Service Commission
Michael Wetherington, P.E./Public Service Commission
Stephen C. Burgess, Esquire/Office of Public Council
Representative Mike Fasano

Department of Environmental Protection

Jeb Bush
Governor

Southwest District
3804 Coconut Palm Drive
Tampa, Florida 33619

Colleen M. Castille
Secretary

August 16, 2004

Abraham Kurien, M.D
1822 Orchardgrove Avenue
New Port Richey, Fl. 34655-4716

Re: Lead and Copper tap sampling locations.

Dear Dr. Kurien:

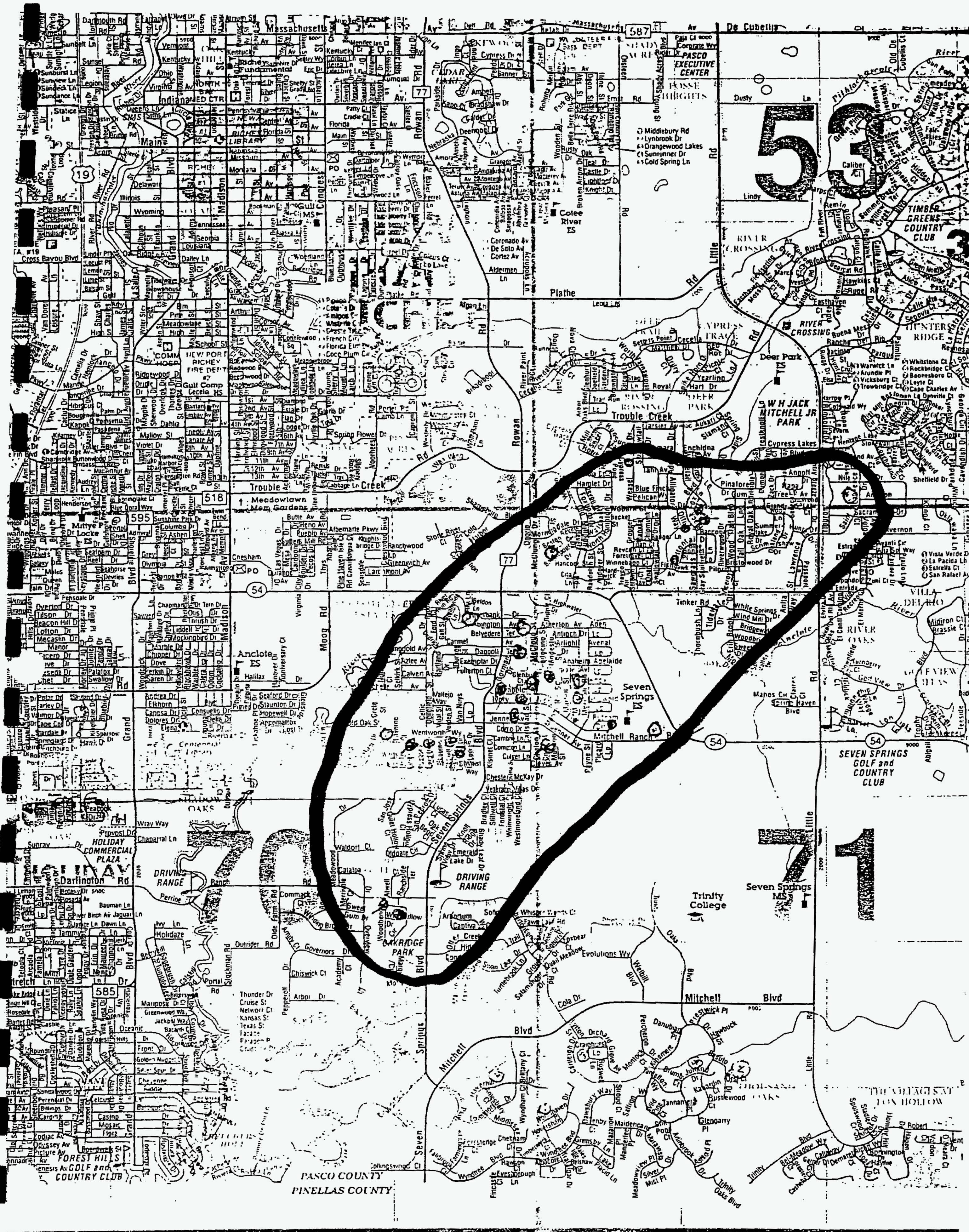
Here is a copy of the information you requested.

Please contact Peter Screnock at (813) 744-6100, extension 318, if you need further assistance.

Sincerely,

Gerald B. Foster
Environmental Specialist III
Drinking Water Section

		SEVEN SPRINGS LEAD AND COPPER 2001			
Location Code	Account #	Last Name	First Name	Address	
RT002	3720-0	Bishop	Mr.	7431 Belvedere Terrace	
RT031	5696-0	Rehm	Brian	6907 Lassen Avenue	
RT035	22704-1	McCrann	Denis	7342 Mitchell Ranch Road	
RT041	19239-3	Turner	Maria	3418 Murrow Street	
RT050	9839-2	Gerhart	Corinna	7638 Balharbour Drive	29
RT054	6277-8	Stoll	George	4259 St. Lawrence Drive	
RT061	20346-3	Fieldhouse	Marinu	7425 Daggett Terrace	
RT066	14102-8	McMahon	Dan	7401 Abington Avenue	
RT086	4349-7	Foskey	Mary	7406 Humboldt Avenue	
RT088	4612-8	Groose	Miriam	7626 Jenner Avenue	28
RT102	4879-3	Bonczek	Henry	7809 Putnam Circle	
RT111	6902-1	Ferro	Frank	4317 Otter Way	
RT118	22781-9	Louden	Jack	4201 Cottontail Drive	
RT120	7213-2	Zint	Richard	4552 Weasel Drive	
RT125	6953-4	Ingoglia	Charles	4348 Black Fox Drive (79)	
RT127	14993-0	Thomas	Christy	4322 Black Fox Drive (79)	
RT128	5802-4	Callaghan	Michael	7658 Montague Loop (80)	
RT137	5481-7	Staples	R.	3117 Lenwood Drive (78)	
RT139	5509-5	Reynolds	James	3129 Ludlow Drive (78)	25
RT149	26211-3	Schaumburger	Carl	3143 Latrobe Street (78)	
RT152	19691-5	Rusinski	Richard	7619 Humboldt Ave. (78)	
RT163	12454	Searle	Josephine	6951 Lassen Ave (78)	
RT171	5874	Kanski	Thomas	3636 McCloud Street (81)	
RT176	16879	Bohnstedt	Brice	3720 Murrow Street (79)	22
RT177	26034*	Davis	Merry	3628 Murrow Street (79)	
RT179	5974	Parker	Mrs. Fred	3526 Murrow Street (79)	
RT186	6093	Christian	Mr.	2313 Woodbend Cir (78)	
RT187	6126	Brunjes	Mrs.	6825 Wind Willow Dr (79)	32
RT206	19690	Salehi	Marilyn	3131Cody Street (79)	
RT212	34734	Mejias	Paulino	7509 Ivory Terrace (78)	2



SEE MAP SUPPLY'S PINELLAS COUNTY MAP

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ROBERT M. C. ROSE
OF COUNSEL

June 19, 1998

VIA HAND DELIVERY

Blanca S. Bayo, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399

Re: Aloha Utilities, Inc.; Docket No. 960545-WS
Water Quality Survey
Our File No. 26038.17

Dear Ms. Bayo:

As you know, Aloha Utilities, Inc has recently completed a Survey of customer satisfaction with the quality of water provided by the Utility. The Public Service Commission staff has been analyzing the results of that Survey and has now issued a "Preliminary Tabulation" of customer responses to the Aloha Survey dated June 17, 1998.

We at Aloha Utilities have now had an opportunity to review the "Preliminary Tabulation" which we received late Wednesday afternoon and we find them to be even more troubling and misleading than the information which the "Suncoast News" reported in its June 17 edition based upon conversations with the PSC staff the previous day. This is especially upsetting in light of the fact that Wednesday morning I hand delivered a letter to the staff stating my concerns with the "Suncoast News" article, in advance of the release of the "Preliminary Tabulation".

The Commission initiated and configured this unprecedented customer satisfaction Survey to elicit responses from customers who were dissatisfied with their water service. In fact, the only bold language in the entire Survey is the provision that provides "**If you do not return the survey, it will be presumed by staff to mean you are satisfied with the quality of water service you currently receive**". In full recognition of this language, approximately 60% of the Utility's customers did not respond to the Survey. **Yet the information contained within the staff's "Preliminary Tabulation"** does not even mention the assumption that not only must be inherent, but which is also plainly and boldly stated on the face of the Survey itself. In fact, the "Preliminary Tabulation" documents published Wednesday deal almost exclusively with statistics based upon a comparison of answers to <u>responding</u> customers, versus a comparison to <u>surveyed</u> customers. This "Preliminary Tabulation" only mentions the number of persons who did not return the Survey in passing, while giving absolutely no weight whatsoever to the bold language of the Survey coversheet, and

therefore the majority of Aloha's customers. Would the PSC staff have issued numerous pie charts and graphs which appear to show 70% dissatisfaction if only 10% or 5% of the customers had responded to the Survey? I certainly hope not.

As a result of the way in which the Survey results are being published in the staff's "Preliminary Tabulation", the staff has violated the conditions under which Aloha agreed to undertake the Survey and the good-faith agreements as to its terms. More importantly, the staff's "Preliminary Tabulation" allows for substantial misinterpretation of customer reaction to the Survey and misinforms the public about the results of that Survey.

Aloha Utilities, Inc. has obtained copies of all of the Survey responses from the Commission and has tabulated its own results. Some of these results have previously been provided to the staff and are being provided as an attachment hereto.

While we would certainly agree that the significant number of responses, and the significant amount of customer concerns with discolored water, taste and odor are cause for further review, the way in which the staff's "Preliminary Tabulation" of those results has been published substantially overstates the level of that dissatisfaction and misleads those who review it.

We are therefore very disappointed and upset at the way in which this information will be received and misunderstood. The manner in which the Survey results are presented by the Commission staff effectively ignores the majority of Aloha's customers who no doubt relied on the bold language at the beginning of the Survey indicating that their voices would be heard if they chose to intentionally not return the Survey.

Sincerely,

ROSE, SUNDSTROM & BENTLEY, LLP

F. Marshall Deterding
For The Firm

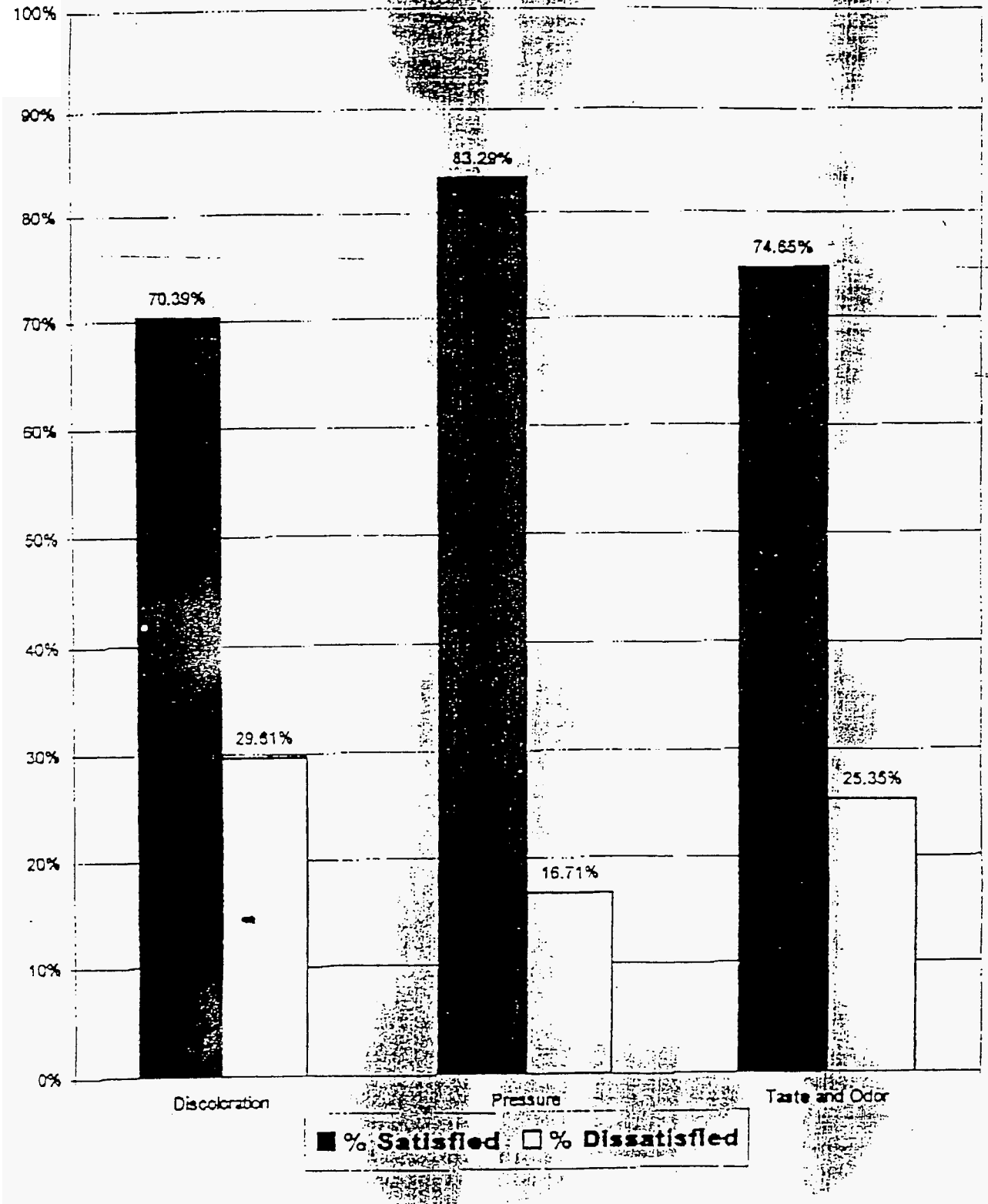
FMD/tmg

Enclosure

cc: Ralph Jaeger, Esquire
Charles H. Hill, Director
Mr. James McRoy
Mr. John M. Starling
Mr. Bob Crouch, P.E.
James Goldberg, President

aloha\17\2bayo.fmd

Summary of Water Quality Survey Results



RECEIVED NOV 0 5 2002

IN THE FIRST DISTRICT COURT OF APPEAL
FOR THE STATE OF FLORIDA

ALOHA UTILITIES, INC.,

Petitioner/Appellant,

vs.

DCA Case No. 1D02-2147

THE FLORIDA PUBLIC SERVICE COMMISSION, ET.AL.

Respondent/Appellees.

REPLY BRIEF OF ALOHA UTILITIES, INC. TO THE PUBLIC SERVICE COMMISSION'S ANSWER BRIEF

(Appeal from Final Order of the Florida Public Service Commission)

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PRELIMINARY STATEMENT

The references and citations in this Reply Brief are identical to those set forth in the Preliminary Statement of the Amended Initial Brief.

This Reply Brief will not specifically address the Statement of the Case and Facts in the Public Service Commission's ("PSC") Answer Brief. Specific responses to some of the points raised therein are set forth below.

The issues in this Reply Brief are assigned the same numbers as the identical issues addressed in the Amended Initial Brief. Due to the fact that the arguments regarding Issues III, V and VI in the Amended Initial Brief are so similar to those of the Office of Public Counsel's ("OPC") Reply Brief, those arguments will not be separately addressed in this Reply Brief. Therefore, Aloha's Reply Brief to the Answer Brief of OPC is incorporated by this reference.

ARGUMENT

I. THE PSC'S ORDER FINDING THAT ALOHA SHOULD NOT BE AUTHORIZED TO CHARGE RATES SUFFICIENT TO ALLOW ALOHA TO PURCHASE BULK WATER FROM PASCO COUNTY IS NOT SUPPORTED BY COMPETENT, SUBSTANTIAL EVIDENCE AND IS CONTRARY TO STATUTE.

Despite the fact that the necessity to purchase water from Pasco County is clearly demonstrated in the record to be the only alternative available in the short term to achieve compliance with the Consent Order, the PSC's Answer Brief uses the phrase "black water" 27 times, and contains at least 12 other references to "water quality problems" and at least 10 other indirect references to water quality issues. It is no coincidence that the PSC's 45 page brief contains these approximately 50

references, even though the ostensible basis for the denial of the rate increase requested by Aloha rests upon an issue involving "burden of proof." These repeated references reveal the true basis for the PSC's decision in this case: The PSC, galvanized by a small fraction of Aloha's customer base and motivated to please Representative Mike Fasano (who lives in Aloha's service area and who has substantially built his political career upon the demonization of Aloha over the last seven years) and frustrated by its own past lack of political will, elected to "punish" Aloha for these perceived water quality concerns and ignored the established and uncontroverted basis upon which Aloha rested this rate case (the fact that Aloha must obtain water from another source immediately and that the only place to obtain that water is from Pasco County). The reference to the PSC's past lack of political will is not lightly made. As the Appendix to OPC Answer Brief reveals, the PSC has previously engaged in an extensive water quality investigation of Aloha which actually resulted in very few substantive directives to Aloha and with which Aloha is in compliance. Additionally, that Appendix and the evidence clearly show that Aloha has previously offered to commence construction of the best available facilities to remove hydrogen sulfide from the source water, but that the PSC "denied the utility's request for an order declaring it prudent to begin construction" of these facilities. (OPC Answer Brief, App. 2, Page 190). As the Appendix to this Reply Brief also graphically demonstrates, in 1998 Aloha submitted a plan which the PSC acknowledged appeared to be a potential solution for the problems experienced by some of Aloha's customers. In that case the PSC found that the "customers are

unwilling to pay for improvements which may or may not alleviate the... black water problem" and that a PSC survey determined that "the large majority of customers who responded to the survey indicated that they are not willing to pay higher rates for better water quality." Accordingly, the PSC concluded that since the customers did not wish to pay the higher rates which would be required for a treatment upgrade that it was not appropriate "to issue an order declaring that it is prudent for Aloha to construct the treatment facilities." (See Appendix to Aloha's Reply Brief to Public Service Commission's Answer Brief, Page 3-12). The PSC simply never had either the will or the motivation to approve Aloha's proposed plans because of its concern over the fallout from a substantive rate increase not otherwise required by any water quality regulatory agency. Despite its rejection of Aloha's offer to construct facilities best suited to resolve the water quality concerns, the PSC now extracts several penalties for Aloha's alleged failure to act.

The PSC's Answer Brief disingenuously argues that Aloha's entitlement to automatic recovery of its costs for any water purchased from Pasco County under the environmental compliance cost provision of Section 367.081(2)(a), Florida Statutes, is an issue which is improperly "raised for the first time in this appeal." To the extent the application of this statute is an "issue" it is not one raised for the first time in this appeal. Chapter 367 is the PSC's enabling statute and the interpretation and application of that statute is the most fundamental task which the PSC is charged to undertake. Aloha's application for increased rates which initiated this case at the PSC specifically refers to Section 367.081, Florida Statutes as the basis for that filing.

It was the PSC Chairman herself who requested that the Consent Order be included in the record. (Tr. Vol. 10, 1426-28). The PSC has relied heavily upon the existence and requirements of the Consent Order since the Final Order below and the PSC's Answer Brief refer to the Consent Order repeatedly and significantly.

The Consent Order conclusively demonstrates and clearly directs that if Aloha does not come into compliance with its Water Use Permit ("WUP") by a certain date, Aloha will be subject to fines and further punishment. Exhibit 18, which was produced by the Southwest Florida Water Management District ("SWFWMD"), conclusively demonstrates that the only way to achieve such compliance in the short term is to purchase water from Pasco County.[1] (Ex. 18). The Consent Order, by its very nature and by the fact that it has been issued by SWFWMD, is an order of an agency specifically referenced in Section 367.081(2)(a). The PSC must apply its own mandatory statute to the facts which were produced at hearing.

At a minimum, this court should find that Issue 9(a) in the Prehearing Order. (R. Vol. 7, 1271) which asks "[w]hat is the appropriate projected number of purchased water gallons from Pasco County and what is the resulting expense?", clearly resulted in the introduction of voluminous evidence regarding the Consent Order, the necessity for Aloha to purchase water from Pasco County, and the availability of Pasco County as the only immediate alternative for the purchase of that water. The PSC's attempt to ignore its own statutory obligation is further evidence

[1]The PSC reluctantly concedes as much when it acknowledges that the Consent Order provides that Aloha will purchase water from Pasco County.

(15)

REVISED RECOMMENDATION

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-59
Page 1 of 4

State of Florida

Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

-M-E-M-O-R-A-N-D-U-M-

DATE: AUGUST 8, 2002

TO: DIRECTOR, DIVISION OF THE COMMISSION CLERK & ADMINISTRATIVE SERVICES (BAYÓ)

FROM: OFFICE OF THE GENERAL COUNSEL (GERVASI)
DIVISION OF ECONOMIC REGULATION (FLETCHER, MERCHANT, WILLIS)

RE: DOCKET NO. 020413-SU - INITIATION OF SHOW CAUSE PROCEEDINGS AGAINST ALOHA UTILITIES, INC. FOR FAILURE TO CHARGE APPROVED SERVICE AVAILABILITY CHARGES IN VIOLATION OF ORDER NO. PSC-01-0326-FOF-SU AND SECTION 367.091, FLORIDA STATUTES.
COUNTY: PASCO

AGENDA: 08/20/2002 - REGULAR AGENDA - PROPOSED AGENCY ACTION EXCEPT FOR ISSUES 2, 5, and 7 - INTERESTED PERSONS MAY PARTICIPATE

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: NONE

FILE NAME AND LOCATION: S:\PSC\GCL\WP\020413.RCM

CASE BACKGROUND

Aloha Utilities, Inc. (Aloha or utility) is a Class A water and wastewater utility located in Pasco County. The utility consists of two distinct service areas, Aloha Gardens and Seven Springs. On February 9, 2000, Aloha filed an application for an increase in rates for its Seven Springs wastewater system. By Order No. PSC-01-0326-FOF-SU, issued February 6, 2001, in Docket No. 991643-SU, the Commission approved increased rates and charges for Aloha. The Commission also directed Aloha to increase its

wastewater service availability charges for its Seven Springs wastewater system from $206.75 per equivalent residential connection (ERC) to $1,650 per residential ERC and $12.79 per gallon for all other connections. The order required Aloha to file an appropriate revised tariff sheet reflecting the approved service availability charges within 20 days of the date of the order.[1]

Among other things, the Commission also ordered the utility to pay a $250 fine for failure to file for approval of an extension to a contract referred to as the "Mitchell agreement," in violation of Order No. PSC-97-0280-FOF-WS, issued March 12, 1997, in Dockets Nos. 950615-SU and 960545-WS. The Commission placed the utility on notice that future non-compliance will not be tolerated, and that a substantially higher fine may be assessed for future non-compliance with the statutes, rules, or orders of the Commission.

Aloha should have submitted revised tariff sheets on wastewater service availability charges and had them approved at the same time as the wastewater rate tariffs, on May 23, 2001. However, in apparent violation of Order No. PSC-01-0326-FOF-SU and Section 367.091, Florida Statutes, the utility did not submit the tariff sheets until almost 10 months later, on March 11, 2002, and did not begin charging its approved service availability charges until almost 11 months later, on April 12, 2002.

Staff originally filed a recommendation in this docket on May 15, 2002, for the May 21, 2002 agenda conference, to address the backbilling issue and the effective date of the increased service availability charges. At the utility's request, the recommendation was deferred to the July 9, 2002 Agenda Conference. By letter dated June 25, 2002, Aloha requested that the matter be continued to the August 6, 2002, Agenda Conference, in order to allow the utility time to work with all affected persons in an attempt to reach a mutually satisfactory agreement. In the meantime, Aloha advised that it would not require developers and builders to pay

[1]Both Aloha and the Office of Public Counsel (OPC) filed petitions for reconsideration of Order No. PSC-01-0326-FOF-SU. Those petitions were disposed of by Order No. PSC-01-0961-FOF-SU, issued April 18, 2001, by which the Commission granted Aloha's motion in part and denied OPC's motion. Order No. PSC-01-0961-FOF-SU reaffirmed the wastewater service availability charges approved by Order No. PSC-01-0326-FOF-SU.

the approved service availability charges for connections made on or before April 16, 2002, pending resolution of this docket, that it would charge its approved service availability charges for connections made after April 16, 2002, and that connections to Aloha's system would be made upon request, so long as all permitting requirements and inspections are completed. With those assurances, staff agreed to file this recommendation for consideration at the August 6, 2002 Agenda Conference.

However, on July 24, 2002, SRK Partnership Holdings, LLC and Benchmark Manmen Corp. (hereinafter referred to as Limited Partners or petitioners), filed a Petition to Intervene in this docket. On July 31, 2002, Aloha filed an Objection to Petition to Intervene (Objection). Also, by letter dated July 25, 2002, and filed July 29, 2002, a customer of Aloha, V. Abraham Kurien, M.D., expressed his objection to the PSC making any settlement with Aloha with respect to the uncollected service availability charges and to any attempt on Aloha's part to collect any portion of the uncollected amount from its present customers. Staff delayed the filing of this recommendation by one agenda filing date in order to incorporate these filings into the recommendation.

This recommendation addresses Aloha's proposed settlement agreement, its apparent violation of Order No. PSC-01-0326-FOF-SU and Section 367.091, Florida Statutes, whether Aloha should be authorized to backbill customers for the approved service availability charges that it should have collected for connections made between May 23, 2001 and April 16, 2002, and whether any backbilled amounts already collected should be refunded with interest, whether any amounts that the utility should have collected should be imputed, whether the Limited Partners' Petition to Intervene should be granted, and the effective date of the increased service availability charges. The Commission has jurisdiction pursuant to Sections 367.091 and 367.161, Florida Statutes.

DISCUSSION OF ISSUES

ISSUE 1: Should Aloha's proposed settlement agreement be approved?

RECOMMENDATION: No, Aloha's proposed settlement agreement should be rejected. The Commission should instead dispose of this matter as set forth in Issues 2 - 7 of this recommendation. (GERVASI, FLETCHER)

STAFF ANALYSIS: By letter dated May 30, 2002, and filed June 18, 2002, counsel for Aloha advised that it had spoken with its largest developers, Trinity Communities and Thousand Oaks Development, regarding a settlement of the show cause involving the utility's failure to charge the wastewater service availability charges set forth in Order No. PSC-01-0326-FOF-SU. By that letter, Aloha offered the following settlement terms:

1. The service availability tariff will be effective April 16, 2002, the date that developers received notice of the increased service availability charge in accord with Staff's position in its May 15th recommendation.

2. Developers and builders requesting connection to Aloha's wastewater system will not be required to pay the new service availability charges for connections made before April 16, 2002. For all connections made after April 16, 2002, the new service availability charges will be in effect.

3. Aloha will agree to pay a fine of $2,500.00, pursuant to Section 367.161, Florida Statutes, for failure to file the appropriate service availability tariff on May 23, 2001 due to an oversight on behalf of the utility.

4. No further penalties or adjustments to rate base or contributions-in-aid-of-construction (CIAC) will be assessed or made associated with this matter.

5. The major developers listed above, which comprise a majority of the homes being developed in Aloha's service territory, will be signatories to this settlement agreement.

ALOHA UTILITIES
2514 ALOHA PLACE

Docekt Nos. 020896-WS & 010503-WU
Exhibit VAK-60
Page 1 of 2

Water News

Aloha Utilities, Inc.

THIS NEWSLETTER HAS BEEN DEVELOPED TO INFORM OU OF THE ACTIVITIES THAT ALOHA ITILITIES IS UNDERAKING TO PROVIDE OU WITH HIGH UALITY WATER ND WASTEWATER JTILITY SERVICES.

ALSO, HERE WE WILL PROVIDE YOU WITH INFORMATION RELATED TO SPECIFIC CUSTOMER CONCERNS AND THE ACTIONS ALOHA IS TAKING TO ADDRESS THEM.

ALOHA UTILITIES WELCOMES ANY COMMENTS YOU MAY HAVE CONCERNING THIS NEWSLETTER: SEND COMMENTS TO:

NEWSLETTER EDITOR
2514 ALOHA PLACE
HOLIDAY, FL 34691

THANK YOU!

How Do I Know That My Drinking Water Is Safe?

Tune into almost any radio or television news program or pick up a newspaper and frequently you will find a story questioning the safety of our nation's drinking water supplies. The problem with many of these stories is that the reporters who prepare them frequently do not fully understand the complex technical issues they are writing about and don't have the time to fully investigate the issues before publishing their story. This leads to the spread of misinformation, generating unnecessary water customer concern over water quality and safety.

While news media reports frequently portray American drinking water supplies as tainted, this portrayal could not be farther from the truth. The drinking water delivered by America's water companies to its customers is far superior to that which you will find in almost any other country on earth. Anyone that has traveled to foreign countries can attest to this fact.

In the US, water suppliers are regulated by the USEPA and their respective state regulatory agency equivalent. In Florida the Department of Environmental Protection (FDEP) regulates the technical operation of water systems.

Aloha Utilities, like all other water suppliers, performs laboratory analysis on literally thousands of water quality control samples each year. In addition to those required by FDEP for compliance purposes, thousands of additional water tests are taken each year to assist in the process control of the water production facilities.

The results of all compliance testing is submitted to FDEP monthly for review so that FDEP can assess the utility company's compliance with FDEP and USEPA rules and requirements. Anytime a water company submits laboratory results to FDEP that are in excess of their regulations, the agency immediately requires the water company to notify its customers and take immediate action to correct the problem that lead to the exceedance of the limits.

In addition, FDEP periodically conducts unannounced Sanitary Surveys at all water production and distribution facilities throughout the state. During this survey FDEP specialists look into every aspect of the utility's operation. Again, if FDEP finds any irregularities, it notifies the utility in writing and requires any deficiencies to to addressed immediately. Also, should FDEP find that any rules or regulations have been violated that could pose even the slightest chance of a health risk, the utility is directed to notify its customers of the problem and the intended solution.

All this state and Federal regulatory agency scrutiny coupled with the utility company's own quality control program is what is responsible for US water customers enjoying the healthiest, most sanitary water available.

Next time in *Water News*, we will describe how your water is produced and what quality control measures are undertaken to ensure the production of healthy, high quality drinking water at our facilities.

Water Discoloration, Cause & Fix

From time-to-time, we receive questions from customers regarding water quality issues. Our staff makes every effort to answer our customer's questions, however, at times the answer is quite complicated and is not easily answered over the telephone. Therefore, beginning with this issue, we will select one water quality question that has been posed by our customers and provide a more detailed discussion of the concern and how we are addressing it.

In this issue we will address water discoloration. Intermittently, we receive calls from customers reporting discolored water. When discolored water occurs, it seems to be associated with hot water more often than cold. The problem, which rarely affects more than a small number of customers at one time, seems to be localized in a small section of our service area (made up of a few subdivisions).

When a customer notifies us of discolored water, we send a member of our field staff to determine if the discoloration exists in the water prior to its entrance into the customer's home.

If the water in our pipelines is discolored, we flush the main lines to remove any silt buildup which may have gathered on the pipeline and may be causing the discoloration. This silt, which is normally found in most water pipelines, poses no health risk and for the most part consists of common minerals (mostly silicon and calcium).

If the water entering the customer's home is clean and clear but the water inside the home is discolored, then, something in happening to the water after it enters the customer's piping system in his home. This type of problem is more difficult to solve because we have little control over what happens to the water after it enters our customer's home.

Earlier this year a number of our customers, located in a small section of our southern service area, began reporting that they were experiencing hot water discoloration. We sent our field staff out to investigate and found that the water discoloration was found in some homes in the area and not in others, in fact, in most of the homes affected, the problem was intermittent.

We asked our consulting engineer to look into the matter and try to determine what was causing the problem. Also, we discussed this problem with the Florida Department of Environmental Protection (FDEP) to enlist their help in identifying the cause of the discolored hot water being experienced by some customers.

We began a month long joint study of the problem with the FDEP which included interviewing customers experiencing the problem, conducting discussion with other water utility operators and FDEP offices throughout the State, extracting hot and cold water samples in a number of customer's homes, collecting samples of water before it entered customer's homes and raw water at the well sites. After the study was completed, the data was analyzed and further discussions were held with the FDEP and our consulting engineer.

Sample Location	5/8/96	6/5/96	7/3/96	7/17/96
Davenport Drive	1.10	0.31	0.13	0.08
Mitchell Boulevard	0.51	0.23	0.16	0.10
Hideaway Court	0.57	0.26	0.13	0.09

Figure 1 - Copper Concentration in mg/L

This study indicated that the water in our mains, prior to it entering our customers homes, met all State and Federal standards and was clear and clean. None of the samples of water extracted at the well sites or in the mains outside our customer's homes was discolored.

Concentrated samples of the discolored water was analyzed by the FDEP. They found that the discoloration was largely composed of copper. This is consistent with similar problems reported by other water companies in the State. Based on the data collected, discussions with FDEP staff and other water utility operators, we came to the conclusion that the discoloration was caused by a compound known as copper sulfide. This compound forms when copper and sulfur (in the form of sulfide) combine in the water heater and copper piping in your home.

Where does the sulfide and copper come from? How will this problem be solved? Sulfur (in the form of sulfide) is a natural ingredient found in the ground water in our area. At our water well facilities, we add chlorine to convert this sulfide to sulfate and elemental sulfur that will not combine with copper to form copper sulfide. However, in home hot water tanks and piping, under the right conditions, sulfate and elemental sulfur can be converted back to sulfide by sulfur reducing bacteria. When this occurs, sulfide is produced and is made available to combine with any available copper and cause the discolored water. Copper, the other necessary ingredient, is leached into the water when it comes into contact with your copper water piping. The reason that the discolored water problem is most often found in hot water as opposed to cold water is that the chemical reaction that combines copper and sulfide into copper sulfide happens a very high rate when the water temperature is increased to that found in your hot water heater.

If the leaching of copper in to the water from the home piping can be eliminated, the formation of copper sulfide should no longer occur and the discolored water problem should be greatly reduced or eliminated.

We began adding a corrosion inhibitor to the water in late April to prevent copper leaching. To date, monitoring of special copper test racks has indicated that the level of copper being leached into the water has fallen dramatically as illustrated in Figure 1.

As we continue to add the corrosion inhibitor chemical, the concentration of copper in the water in your home will continue to reduce until the formation of new copper sulfide can no longer take place. After existing copper sulfide, which has built-up in your hot water tank and piping, is flushed from your hot water system, water discoloration should be greatly reduced.

Hopefully, within the next few weeks the discolored water problems being experienced by some of our customers will be history.

FLORIDA PUBLIC SERVICE COMMISSION
Capital Circle Office Center • 2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

M E M O R A N D U M

OCTOBER 23, 1997

TO: DIRECTOR, DIVISION OF RECORDS AND REPORTING

FROM: DIVISION OF WATER AND WASTEWATER (MCROY, STARLING, CROUCH, CHASE, VON FOSSEN)
DIVISION OF LEGAL SERVICES (JAEGER)

RE: DOCKET NO. 960545-WS - INVESTIGATION OF UTILITY RATES OF ALOHA UTILITIES, INC.
COUNTY: PASCO

AGENDA: NOVEMBER 4, 1997 - REGULAR AGENDA - POST HEARING DECISION PARTIES MAY PARTICIPATE (ISSUE 1 IS PROPOSED AGENCY ACTION).

CRITICAL DATES: NONE

SPECIAL INSTRUCTIONS: NONE

FILE LOCATION: I:\PSC\WAW\WP\960545B.RCM
R:\PSC\WAS\123\ALOHA.WK4 - ATTACHMENTS 5 & 6

CASE BACKGROUND

Aloha Utilities, Inc. (Aloha or Utility), is a class A water and wastewater utility located in Pasco County. The Utility consists of two distinct service areas -- Aloha Gardens and Seven Springs. As of December 31, 1996, Aloha was serving 8,474 ERCs in its Seven Springs service area.

On April 30, 1996, Mr. James Goldberg, President of the Wyndtree Master Community Association, filed a petition, signed by 262 customers within Aloha's Seven Springs service area, requesting that the Commission investigate the utility's rates and water quality. The petition and request were assigned Docket 960545-WS.

For the purposes of hearing, Docket 960545-WS was consolidated with Docket 950615-SU (Aloha's reuse case). The hearing was held on September 9-10, 1996 in New Port Richey, and concluded on October 28, 1996 in Tallahassee. Customer testimony about quality of service was taken on September 9, 1997. Both customer testimony sessions were attended by over 500 customers, fifty-six of whom

whether or not they would be willing to pay higher rates for better water quality.

Beginning in January, 1996, the Florida Department of Environment Protection (DEP) started to receive complaints about black water from Aloha customers within the Chelsea and Wyndtree areas of Aloha's Seven Springs water system. There are 436 homes in the Wyndtree area and 144 homes in Chelsea and it is staff's understanding that each of these homes has copper plumbing. Staff has observed black water coming out of the hot water side of the bathroom tubs and sinks and most of the customers have told staff that the black discoloration is worse on the hot water side. However, both in conversations with staff and through their testimony at the formal hearing, customers have indicated that the black water is sometimes observed on the cold water side. Many customers have also told staff that their clothes have been stained when washed in hot water. Unless the customer has been away from their home for an extended time, the water will usually become clear within two minutes. Even after the water clears, however, a black residue will remain in the tub which can only be removed by physically scrubbing it out.

Some customers in Wyndtree have told staff that the black water problem occurs frequently. Other customers within Wyndtree have told staff that they have never experienced a problem with black water. Several customers have told staff that, in response to a black water complaint, Aloha will come out and drain the home's hot water heater and flush the lines. The customers have indicated that this procedure works temporarily, but the problem will eventually recur.

Aloha has informed staff that during the past year, it has received black water complaints from 144 customers within Wyndtree and 44 customers within Chelsea. Representative Fasano has provided the Commission with copies of numerous letters by which Aloha is informed of customers who have complained to his office about black and/or "smelly" water. Since it is reasonable to assume that some customers have simply stopped complaining to Aloha about the discolored water, staff believes that the 188 customers who have complained to Aloha during the past year only indicates the minimum number of customers who are experiencing the black water problem. Staff believes that the number of homes in Wyndtree and Chelsea which are currently experiencing discolored black water problems is between 200-300, but cannot at this time provide a more specific estimate. As is discussed later in this issue, staff recommends that the utility should be required to survey its

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IN THE FIRST DISTRICT COURT OF APPEAL
FOR THE STATE OF FLORIDA

ALOHA UTILITIES, INC.,

Petitioner/Appellant,

vs.

DCA Case No. 1D02-2147

THE FLORIDA PUBLIC SERVICE COMMISSION, ET.AL.

Respondent/Appellees.

REPLY BRIEF OF ALOHA UTILITIES, INC. TO THE OFFICE OF PUBLIC COUNSEL'S ANSWER BRIEF

(Appeal from Final Order of the Florida Public Service Commission)

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Florida Cases: **Page No.:**

PRELIMINARY STATEMENT

The references and citations in this Reply Brief are identical to those set forth in the Preliminary Statement of the Amended Initial Brief.

This Reply Brief will not specifically address the Statement of the Case and Facts in the Office of Public Counsel's ("OPC") Answer Brief. Specific responses to some of the points raised therein are set forth below.

The issues in this Reply Brief are assigned the same numbers as the identical issues addressed in the Amended Initial Brief. Due to the fact that OPC's arguments regarding Issue IV in the Amended Initial Brief are so similar to those of the Public Service Commission in its Reply Brief ("PSC"), those arguments will not be separately addressed in this Reply Brief. Therefore, Aloha's Reply Brief to the Answer Brief of PSC is incorporated by this reference.

I. THE PSC'S ORDER FINDING THAT ALOHA SHOULD NOT BE AUTHORIZED TO CHARGE RATES SUFFICIENT TO ALLOW ALOHA TO PURCHASE BULK WATER FROM PASCO COUNTY IS NOT SUPPORTED BY COMPETENT, SUBSTANTIAL EVIDENCE AND IS CONTRARY TO STATUTE.

Unlike the PSC, whose criticism of the Southwest Florida Water Management District ("SWFWMD") was either implied or phrased in the most cautious terms, OPC directly attacks SWFWMD's "solution" to its "concern for overpumping" and states that the Consent Order "does not even address (SWFWMD's) stated concerns." Perhaps OPC's direct attack on the conclusions of SWFWMD is based upon the fact that OPC, unlike the PSC, realized that SWFWMD's positions were completely contrary to the Order of the PSC (and even the positions which the PSC maintained

were the positions of the SWFWMD itself). SWFWMD's Post-Hearing Statement stated without equivocation that "there is a benefit to the environment and the public in requiring Aloha to purchase water from Pasco County." (R. Vol. 7, 1333). The PSC concluded that there had been absolutely no demonstration that the only alternative source of water available to Aloha in the short term was the purchase of water from Pasco County. SWFWMD's Post-Hearing Statement stated directly and succinctly that "the only alternative source of water available to Aloha in the short term is the purchase of water from Pasco County." *Id.*

OPC opines that the Consent Order "provides absolutely no relief at all for the very problem that it is seeking to solve." OPC concludes that under the Consent Order "it appears the environmental problems will actually grow worse." While these three public agencies (the PSC, OPC , and the SWFWMD) might wish to engage in a semantical ballet, Aloha has neither the time nor the luxury to engage in academic micro-analysis of the "hidden meaning" or advisability of the directives in the PSC's Final Order and SWFWMD's Consent Order. Those two documents are in direct conflict like stone walls closing in on Aloha from opposite directions. The Consent Order requires, clearly and unequivocally, Aloha to do a certain thing by a certain date or face severe penalties.[1] The PSC's Final Order denies to Aloha the only opportunity to accomplish the thing which SWFWMD has directed it must do,

[1]That date has come and gone, and SWFWMD has denied Aloha's request to extend the same. On September 30, 2002, SWFWMD filed the case of *Southwest Fla. Water Mgmt. Dist. v. Aloha Utilities, Inc.*, No. 51-202-CA-2549-WS (Fla. 6th Cir. Ct.), seeking injunctive relief, accruing fines, and "civil penalties exceeding $15,000.00" against Aloha for failure to come into compliance with its WUP.

thereby placing Aloha in an impossible position. While the PSC (and certainly OPC) will apparently shed no tears at Aloha's plight, the clear decision by the PSC, with the agreement of OPC, to ignore the Consent Order issued by SWFWMD is much more than an academic administrative or jurisdictional exercise. Without relief the Final Order can, and likely will, result in the bankruptcy of Aloha.

Like the PSC, OPC attempts to attract this court's collective eye towards the concept of "black water," even referring to a 1996 case and attaching a copy of a 2000 PSC Order to its Brief.[2] However, as with the PSC, OPC's claim that Aloha has been remiss in addressing the black water problem conveniently ignores Aloha's ongoing pilot project to explore methods to eliminate the problem experienced by a small number of Aloha's customers. It ignores that Aloha is also currently studying the potentiality of implementing a water treatment process known as reverse osmosis. It ignores that the PSC itself took little substantive action after the 2000 Water Quality Investigation. Finally, and most importantly, it ignores that the PSC affirmatively blocked Aloha's attempt to obtain a declaration of prudency in 1998 for Aloha's proposal to construct packed tower aeration treatment facilities to remove hydrogen sulfide from Aloha's raw water not otherwise required by any regulatory agency. (OPC Answer Brief, App. 2, Page 190) The very facilities Aloha's management is now being chastised and financially punished for failure to construct.

Just as with the PSC, OPC paints a dreary picture of customer satisfaction in

[2]The extensive citations by OPC to prior cases and orders apparently manifests OPC's belief that there is insufficient evidence *in this case* to support the Final Order.

Aloha's service area while actively avoiding the fact that the evidence in this case reveals that only 30 customers (which constitute less than 1/10 of one percent of Aloha's total customers) testified at the hearing and that the PSC's own management audit staff's detailed review of Aloha's customer service concluded after November, 2001 found that "Aloha's customers are generally satisfied with Aloha's customer service, the timeliness of response and the overall handling of various customer requests." (Tr. Vol. 10, 1359-60). As with the PSC's Answer Brief, OPC's Answer Brief apparently finds it more convenient to attack an alleged "black water" problem some customers experience, rather than to deal with the uncontradicted evidence that Aloha has no choice but to obtain water from another source, pursuant to the directives of SWFWMD as embodied in the Consent Order (Ex. 36), and that the *only* source in the near term to obtain that water is Pasco County. (Ex. 18) Just as did the PSC, OPC seems to confuse the issues of quantity (Aloha must obtain the additional water) with that of quality (the "black water" problem), which Aloha is otherwise addressing.

OPC states that Aloha's customers should not be forced to pay an "artificially" high rate for water, particularly when the result is a "detrimental effect on the environment." It is the SWFWMD, and not OPC nor the PSC, who is statutorily empowered to safeguard the environment and to determine the sources from which a utility should extract their water supply. This they have done, in their own good

judgment, through the issuance of the Consent Order.[3] The fact that Aloha continued overpumping from its own private wells, as opposed to purchasing the water from Pasco County at an earlier date, has economically benefitted Aloha's customers (although revenue neutral to Aloha) without harming the water resource. (Tr. Vol. 6, 837-39)

II. THE COMMISSION'S ORDER DIRECTING ALOHA TO IMPLEMENT A TREATMENT PROCESS DESIGNED TO REMOVE AT LEAST 98% OF THE HYDROGEN SULFIDE IN ALOHA'S RAW WATER IS NOT SUPPORTED BY COMPETENT, SUBSTANTIAL EVIDENCE AND EXCEEDS THE PSC'S LAWFUL JURISDICTION.

OPC's Answer Brief, like the Answer Brief of the PSC, doesn't even attempt to argue that the PSC has the jurisdiction to impose a water quality standard on Aloha as the PSC has done in this case by directing Aloha to remove 98% of the hydrogen sulfide from its raw water. While OPC's Answer Brief goes into a lengthy and one sided recitation of the "background" to these matters it does not even attempt to argue that the PSC has the lawful jurisdiction to impose water quality treatment standards which: (1) exceed any and all standards which could lawfully be imposed by the Department of Environmental Protection; (2) which exceed any ever imposed on any other governmental or privately owned water utility in Florida; and (3) which are unprecedented in the history of the PSC. It is even more perplexing that Aloha should be the first utility in Florida history to have such a standard imposed upon it

[3]The SWFWMD submitted a Post-Hearing Statement to the PSC in this very case which said that there "is a benefit to the environment and the public in requiring Aloha to purchase water from Pasco County" (R. Vol. 7, 1333).

RECEIVED
JUN 30 1994
Department of Environmental Protection
SOUTHWEST DISTRICT
BY

ENGINEERING REPORT

PUMPING AND DISINFECTION PLANTS FOR WELL #8 AND WELL #9

Prepared for:

Aloha Utilities Inc.
2514 Aloha Place
Holiday, Fl 34691

Prepared by:

Genesis Group Inc.
3910 U.S. Highway 301 North
Suite 140
Tampa, Fl 33619

I INTRODUCTION

This report has been developed to accompany the Application to Construct a Public Drinking Water System for permitting of the construction of two new water plants constisting of pumping and disinfection. Each plant is constructied at the site of a new well approved under SWFWMD Water Use Permit (Permit Number 203182) for the Seven Springs Water System owned and operated by Aloha Utilities, Inc. These facilities are being constructed to increase the supply and operating pressure, during peak usage, in the southern portion of their established water service area.

Aloha Utilities Inc., (AUI) is a privately owned, franchised utility company providing water and sewer service to two separate and distinct service areas. Water and sewer service are provided to the Seven Springs service area, and the Aloha Gardens service area. They are more than two miles apart and are not interconnected.

Aloha Utilities, Inc., is regulated by the State of Florida, Public Service Commission, under Certificate Number 136-4. The Public Service Commission closely regulates AUI's rates and charges for water customers as well as allocation of expenses incurred in the operation of the system.

The Seven Springs Water System FDEP identification number is 6512214.

In April of 1994, a report entitled "Capacity and Performance Analysis" was prepared for the Seven Springs Water System by Commonwealth Engineering Associates, Incorporated. Portions of this report contain basic water system data and a portion of this report is included as "Appendix A". Some of this data is pertinent to this construction permit application and will be referenced as (Appendix A).

II SEVEN SPRINGS WATER SYSTEM

Existing System

7043 from AP

The Seven springs water system presently provides service to 6,694 single family, multifamily, and commercial customers (Appendix A) within a 11 square mile service area in western Pasco County, as shown in Figure 1.

The water system originally served the Veterans Village subdivision and was expanded to serve other developments as the opportunity arose. Veterans Village was originally aimed at the retirement market with relatively small homes on lots averaging 7,000 sf in area. Over the years this area has become a completely integrated area with a complete mix of age and occupation. Other developments such as Heritage Lakes, Riverside Village, and Country Place have lots in the 7,000 sf range but still exhibit a wide diversity of lifestyle. Recent developments in the south part of the service area, such as Wyndtree, Trinity Oaks, Natura, Fox Hollow, and Chelsea place have lots in the 10,000-25,000 sf range with still larger homes.

In 1990, Pasco County approved the Development of Regional Impact Statement for the Trinity Communities Development which encompasses the entire western portion of the Aloha service area, south of Mitchell Ranch Road and State Road 54. This development includes residential, commercial, recreational, and educational uses over approximately 3,500 acres. The community is envisioned to ultimately encompass a residential population of 24,000 people. Fox Hollow is the first section of this project to be developed.

Water supply is provided by six existing deep wells spread over the northern portion of the service area which pump directly into the distribution system. The wells have an annual average withdrawal rate of 2.04 mgd (1993)(Appendix A), with a peak monthly withdrawal rate of 2.64 mgd (Appendix A). Chlorination is utilized for disinfection and reduction of hydrogen sulfide. Two additional wells are proposed in the previously referenced permit application accompanying this report.

The system is also equipped with a water pumping station equipped with a 500,000 gallon ground storage tank and three high service pumps. The tank is filled from four of the existing wells, which also supply a portion of the distribution system, during off-peak hours. The pumping station presently has three high service pumps with a total capacity of 3,000 gpm.

An additional pumping station, with a 1.0 MG ground storage tank, with chlorination and high service pumping equipment, is presently under design and will be submitted for permitting in August 1994, with construction commencing immediately upon approval of the permit application.

Current Use

The total withdrawal for each calendar month of 1993, along with the average daily and maximum daily flow for the month. is shown in the following table:

Table 1

MONTH	TOTAL USAGE	MONTHLY ADF (MGD)	MONTHLY MAX DAY (MGD)
January	1.71	2.394	2.394
February	1.76	2.188	2.188
March	1.73	2.669	2.669
April	1.96	2.084	2.084
May	2.64	3.816	3.816
June	2.32	3.025	3.025
July	2.17	2.727	2.727
August	2.38	3.067	3.067
September	1.78	2.255	2.255
October	2.08	2.647	2.647
November	2.02	2.434	2.434
December	1.93	2.336	2.336

The annual average daily flow for 1993 was 2.04 MGD and the maximum daily flow was 3.82 MGD. Therefore the Maximum Day/Average Day factor is 1.87. The Peak Hourly/Average Daily flow ratio is 2.91 (Appendix A).

The per customer consumption for the Seven Springs water system is shown to be 305 GPD (Appendix A). The majority of the residential customers within the service area reside within two census tracts, defined by the United States Bureau of Census. They are tracts 315.00 and 317.02. The 1990 census data for these two tracts shows a population of 2.32 persons per dwelling unit. This gives a per capita consumption of 131 GPD.

Demand Projections

The Water Use Permit Application calls for projections of the water to be used in six years and ten years. Projections of the Seven Springs demand were made utilizing population projections furnished by SWFWMD, population projections obtained from the University of Florida, Bureau of Economic and Business Research, and by a straight line projection utilizing the Method of Least Squares based on the annual water usage shown in Table 1. The projections are shown in Figure 3.

The SWFWMD based projection shows a demand of 2,040,000 gpd in 1998 (6 years) and a demand of 2,200,000 in 2002 (10 years). The current permit, which expires in September of 1998, is for a total permitted consumption of 2,040,000 gpd.

Intersystem Agreements

Aloha presently has an interservice agreement with Pasco County for the County to provide water to Aloha in case of emergency or unusually high demands

Water Quality

The water quality of the existing AUI Seven Springs wells continues to meet all applicable public water supply standards. Water quality is expected to remain within standards through the permit period and probably through the 20 year planning period.

Water quality is periodically measured in accordance with FDER requirements. Well #25 is utilized for monitoring water quality and salinity levels.

Existing Treatment system

At present, each well is equipped with a gas chlorinator for disinfection and reduction of trace quantities of hydrogen sulfide, where it exists. Design is presently under way for construction of an aerator and chlorination facilities at the existing storage and high service pumping facility.

The storage and repumping facility is also equipped to provide chlorination of the water when pumped from the storage tank.

The Distribution System

The utility presently owns and operates approximately 160,000 feet of 2-inch through 16-inch water main. Over 95% of the mains are PVC, with the oldest mains being only 21 years old. The reported annual unaccounted for losses, which includes leakage, is 3%, indicating the distribution system is in good condition.

PROPOSED FACILITIES

General

The proposed facilities consist of two virtually identical pumping and chlorination plants located at the two well sites. These plants will pump directly into the water distribution system, on an interim basis, until the proposed storage and high service pumping facilities are placed in service. At that time, the water will be pumped through an aerator into the ground storage tank, then repumped from the tank with chlorination for disinfection. The ability to pump directly into the system will be retained, in the event that the storage and high service pumping facility is out of service.

Well #8: This facility consists of a pumphouse and exterior 10,000 gallon hydropneumatic tank, with associated yard piping, enclosed by a six-foot chain link fence. The pumphouse is divided into two rooms, one for mechanical and electrical components and the other for chlorination facilities.

The well has 160 feet of 10-inch and 66 feet of 6-inch casing and 116 feet of 6-inch open hole, for a total depth of 342 feet. The 6-inch casing was installed in the bottom of the 10-inch casing to seal off a zone of bad material. Drawdown at the proposed pumping rate of 500 GPM is approximately 69 feet. This is primarily due to the material surrounding the open hole portion of the well restricting flow into the well. A report by ARMAC Engineers, Inc., adressing the drawdown in this well, is included as Appendix "D". The drilling log and the test pumping results are included as attachments to the construction permit application.

The mechanical/electrical room contains the vertical turbine well pump, rated at 500 GPM @ 240 feet TDH, chlorine booster pump, pump control valve, flow meter and recorder, and electrical and control equipment. The pump will operate either from a pressure switch or a time clock. The pressure switch will be the primary operator and the time clock would be used during low flow periods to exercise the pump.

A pump control valve is provided to allow the pump to start and stop at shut-off head conditions. The opening and closing duration of the valve is adjusted to prevent water hammer. The particular model of valve specified also allows the valve to maintain a preset backpressure against the pump which can be adjusted to limit the output of the well to 500 GPM regardless of the pressure in the system.

Flow from the well is measured by a tube type meter with a wall mounted indicator/totalizer.

The Chlorine room contains a dual cylinder scale, dual cylinders with automatic switchover units, and two wall-mounted fixed rate V-notch chlorinators. Provisions are made for storing six additional cylinders, with chains to prevent tipping. For safety and monitoring of the chlorine feed rate, a high/low vacuum switch, chlorine leak detector, and chlorine residual monitoring equipment

is included. All three items are connected to an external audible/visible alarm if an alarm condition is experienced. The leak detector and residual analyzer are also connected to a telephone alarm function which transmits a recorded message to Aloha's 24-hour emergency answering service.

Chlorination Calculations:

The chemical analyses, with Chlorine Demand analysis, for Well #8 are included as Appendix "B". The Chlorine Demand analysis shows a hydrogen sulfide content of 1.43 ppm. The ananlysis shows that a dosage of 10 ppm leaves a residual of 1.3 ppm after 18 hours. The flow rate is 500 gpm or 0.72 mgd.

Chlorine Feed Rate = 0.72 x 10 x 8.34 = 60 #/day

The chlorinator will be equipped with a 0 - 100 #/day rotameter

The 10,000 gallon hydropneumatic tank will be operated with 7,500 gallons of water in the tank at low level to provide 15 minutes chlorine contact time at the proposed flow rate of 500 gpm. Air to the tank will be provided by a tank mounted air compressor/level control unit. When the pump shuts off, air is pumped into the tank as required. The initial air charge will be provided from a portable air compressor.

Well #9: This facility consists of a pumphouse and exterior 10,000 gallon hydropneumatic tank, with associated yard piping, enclosed by a six-foot chain link fence. The pumphouse is divided into two rooms, one for mechanical and electrical components and the other for chlorination facilities.

The well has 224 feet of 10-inch and 6-inch casing and 102 feet of 6-inch open hole, for a total depth of 326 feet. Forty feet of 6-inch casing was installed in the bottom of the 10-inch casing to seal off a zone of bad material. Drawdown at the proposed pumping rate of 500 GPM is approximately 69 feet. This is primarily due to the material surrounding the open hole portion of the well restricting flow into the well. The drilling log and the test pumping results ara included as attachments to the construction permit application.

The mechanical/electrical room contains the vertical turbine well pump, rated at 500 GPM @ 240 feet TDH, chlorine booster pump, pump control valve, flow meter and recorder, and electrical and control equipment. The pump will operate either from a pressure switch or a time clock. The pressure switch will be the primary operator and the time clock would be used during low flow periods to exercise the pump.

A pump control valve is provided to allow the pump to start and stop at shut-off head conditions. The opening and closing duration of the valve is adjusted to prevent water hammer. The particular model of valve specified also allows the valve to maintain a preset backpressure against the pump which can be adjusted to limit the output of the well to 500 GPM regardless of the pressure in the system.

Flow from the well is measured by a tube type meter with a wall mounted indicator/totalizer.

The Chlorine room contains a dual cylinder scale, dual cylinders with automatic switchover units, and two wall-mounted fixed rate V-notch chlorinators. Provisions are made for storing six additional cylinders, with chains to prevent tipping. For safety and monitoring of the chlorine feed rate, a high/low vacuum switch, chlorine leak detector, and chlorine residual monitoring equipment is included. All three items are connected to an external audible/visible alarm if an alarm condition is experienced. The leak detector and residual analyzer are also connected to a telephone alarm function which transmits a recorded message to Aloha's 24-hour emergency answering service.

Chlorination Calculations:

The chemical analyses, with Chlorine Demand analysis, for Well #9 are included as Appendix "B". The Chlorine Demand analysis shows a hydrogen sulfide content of 4.3 ppm. The ananlysis shows that a dosage of 20 ppm leaves a residual of 1.8 ppm after 18 hours. The flow rate is 500 gpm or 0.72 mgd.

Chlorine Feed Rate = 0.72 x 20 x 8.34 = 120 #/day

The chlorinator will be equipped with a 0 - 150 #/day rotameter

The 10,000 gallon hydropneumatic tank will be operated with 7,500 gallons of water in the tank at low level to provide 15 minutes chlorine contact time at the proposed flow rate of 500 gpm. Air to the tank will be provided by a tank mounted air compressor/level control unit. When the pump shuts off, air is pumped into the tank as required. The initial air charge will be provided from a portable air compressor.

APPENDIX "B"

CHEMICAL ANALYSES

WELL #8

SAMPL 8F
CLIENT: Ben ..velace & Company

RECEIVED
JUN 27 ...

PUBLIC DRINKING WATER ANALYSIS FORM

BLIC WATER SYSTEM INFORMATION

NAME Aloha Utilities Inc. ID# 6512214

ADDRESS 2514 Aloha Place PHONE# 937-4275
Holiday, Florida 34691

TYPE: C C= Community NTN= Nontransient Noncommunity N= Non Community

AMPLE INFORMATION

SAMPLE DATE 5/16/94 SAMPLE TIME 1:15 P.M. LAB SAMPLE # see above

SAMPLE LOCATION: Well #8-26 Well 8

SAMPLER NAME/PHONE# Bonita Lucas (813) 530-5615

SAMPLE TYPE: RW DIST=Distribution CL=Clearance DEP=Distribution Entry Point
RC=Recheck of MCL TMRT=THM Max Res Times RW=Raw
RLIS=Resample of Lab Invalidated Sample PT=Plant Tap CP=Composite

LAB CERTIFICATION INFORMATION

LAB NAME Haines Testing Laboratory, Inc. HRS#/EXPIRATION DATE #84123 6/94
ADDRESS 13285 62nd Street North Clearwater, FL 34620 PHONE (813) 530-5615

SUBCONTRACTED LAB HRS# GROUPS ANALYZED see below
KNL Laboratory Services #84252 & E84025
Micro Analytical Laboratories, Inc. #82436

ANALYSIS INFORMATION

DATE SAMPLES RECEIVED 5/16/94

GROUPS ANALYZED Complete 17-550

I, W.E. Haines do hereby Certify that all analytical data reported has been reviewed by me and to the best of my knowledge, is correct.

Signature

Title PRESIDENT

NO2= Nitrite
NO3= Nitrate
ASB= Asbestos
T= Turbidity
IN18= Inorganics all 18
THM4= THMs all 4
P= Partial

SEC 14= Secondaries all 14
PST= Pesticides & PCBs all 29
GI= Group I Unregulateds all 13
GII= Group II Unregulateds all 37
RC= Radio chemicals
VOC21= Volatile Organics all 21

COMPLIANCE INFORMATION

Sample Collection Satisfactory:

Sample Analysis Satisfactory:

Resample Requested for:

Reason:

Person notified to resample:

Date Notified:

DER/ACPHU Reviewing Official:

SAMPLE# 88948
CLIENT: Ben Lovelace & Company

WELL 8

SECONDARY CHEMICAL ANALYSIS
17-550.320
(PWS031)

Parameter ID	NAME	Sample Number	Analysis Result (mg/l) WELL 8	Analytical Method	Analysis Date
1002	Aluminum (.2)	88948	< 0.020 ✓	202.1	5/26/94
1017	Chloride 250	" "	10	4500B	5/20/94
1022	Copper 1	" "	< 0.002 ✓	220.1	5/15/94
1025	Fluoride 2.0	" "	0.16	340.2	5/20/94
1028	Iron .3	" "	0.092	236.1	5/29/94
1032	Manganese .05	" "	< 0.002	243.1	5/18/94
1050	Silver .1	" "	< 0.005	272.2	6/14/94
1055	Sulfate 250	" "	1	375.4	5/26/94
1095	Zinc 5	" "	0.003	289.1	5/15/94
1905	Color (color units) 15	" "	15	110.2	5/12/94
1920	Odor (total odor number) 3	" "	< 1	140.1	5/12/94
1925	pH 6.5 - 8.5	" "	7.4	150.1	5/12/94
1930	Total Dissolved Solids 500	" "	260	160.1	5/19/94
1905	Foaming Agents .5	" "	0.36	425.1	5/12/94

RADIOLOGICAL ANALYSIS
17-550.310(5)
(PWS033)

Parameter		Sample Number	Analysis Result (pCi/l)	Analytical Method	Analysis Error	Analysis Date
4000	Gross Alpha	88948	3.7 ± 1.4	900.0		5/24/94
4012	Photon Emitters					
4020	Radium-226					
4030	Radium-228					
4100	Gross Beta					
4101	Man-made beta & photon emitters					
4102	Tritium					
4172	Strontium-89					
4174	Strontium-90					
4264	Iodine-131					
4270	Cesium-134					

HAINES TESTING LABORATORY, INC.
13255 62nd STREET NORTH
CLEARWATER, FLORIDA 34620
TELEPHONE (813) 530-56..

June 24, 1994

REPORT NO 88948

FOR Ben Lovelace & Company
6501 Orient Road
Tampa, FL 33610

ANALYSIS CHLORINE DEMAND

SAMPLE MARKINGS Water sample taken 5/10/94 @ 1:15 P.M., received 5/16/94 @ 3.00 P.M.

LABORATORY FINDINGS

HYDROGEN SULFIDE 1.43
milligrams per liter

milligrams/liter Dose	pH after Dose	millligrasm/liter CHORINE DEMAND @ 1 Hour	pH @ 18 Hour Contact	milligrams/liter CHLORINE DEMAND @ 18 Hours
5	7.6	7.2	7.55	7.9
10	7.6	8.0	7.60	8.7
15	7.7	10.3	7.8	11.4
20	7.8	9.6	7.8	11.7
25	7.85	9.8	7.85	12.3
30	7.9	10.4	7.9	13.1
40	8.05	11.9	8.05	14.0
50	8.15	10.6	8.10	13.4
Blank				
0	7.5		6.65	
1.0	7.35	0	6.75	0.08
2.0	7.65	0.15	7.10	0.32

HAINES TESTING LABORATORY, INC.
FL Certification #84123 & E84039

W.E. HAINES, Ph.D.

APPENDIX "C"

CHEMICAL ANALYSES

WELL #9

SAMPLE # 8'
CLIENT: Ben Lovelace & Company

PUBLIC DRINKING WATER ANALYSIS FORM

BLIC WATER SYSTEM INFORMATION

NAME Aloha Utilities, Inc. ID# 6512214

ADDRESS 2514 Aloha Place PHONE# 937-4275
Holiday, Florida 34691

TYPE: C C= Community NTN= Nontransient Noncommunity N= Non Community

SAMPLE INFORMATION

SAMPLE DATE 5/12/94 SAMPLE TIME 2:30 P.M. LAB SAMPLE # see above

SAMPLE LOCATION: Well #9-27

SAMPLER NAME/PHONE# Bonita Lucas (813) 530-5615

SAMPLE TYPE: RW DIST=Distribution CL=Clearance DEP=Distribution Entry Point
RC=Recheck of MCL TMRT=THM Max Res Times RW=Raw
RLIS=Resample of Lab Invalidated Sample PT=Plant Tap CP=Composite

LAB CERTIFICATION INFORMATION

LAB NAME Haines Testing Laboratory, Inc. HRS#/EXPIRATION DATE #84123 . 6/94
ADDRESS 13285 62nd Street North Clearwater, FL 34620 PHONE (813) 530-5615

SUBCONTRACTED LAB HRS# GROUPS ANALYZED see below
KNL Laboratory Services #84252 & E84025
Micro Analytical Laboratories, Inc. #82436

ANALYSIS INFORMATION

DATE SAMPLES RECEIVED 5/12/94

GROUPS ANALYZED Complete 17-550

I, W.E. Haines do hereby Certify that all analytical data reported has been reviewed by me and to the best of my knowledge, is correct.

Signature

Title PRESIDENT

NO2= Nitrite
NO3= Nitrate
ASB= Asbestos
T= Turbidity
IN18= Inorganics all 18
THM4= THMs all 4
P= Partial

SEC 14= Secondaries all 14
PST= Pesticides & PCBs all 29
GI= Group I Unregulateds all 13
GII= Group II Unregulateds all 37
RC= Radio chemicals
VOC21= Volatile Organics all 21

COMPLIANCE INFORMATION

Sample Collection Satisfactory:

Sample Analysis Satisfactory:

Resample Requested for:

Reason:

Person notified to resample:

Date Notified:

DER/ACPHU Reviewing Official:

SAMPLE# 88927
CLIENT: Ben Lovelace & Company

SECONDARY CHEMICAL ANALYSIS
17-550.320
(PWS031)

WELL 9

Parameter ID	NAME	Sample Number	Analysis Result (mg/l) WELL 9	Analytical Method	Analysis Date
1002	Aluminum .2	88927	< 0.020	202.1	5/26/94
1017	Chloride 250	" "	4 Jv	4500B	5/20/94
1022	Copper 1	" "	< 0.002	220.1	5/15/94
1025	Fluoride 2.0	" "	0.15	340.2	5/20/94
1028	Iron .3	" "	0.068	236.1	5/29/94
1032	Manganese .05	" "	0.005	243.1	5/18/94
1050	Silver .1	" "	< 0.005	272.2	6/14/94
1055	Sulfate 250	" "	10 JV	375.4	5/26/94
1095	Zinc 5	" "	0.004	289.1	5/15/94
1905	Color (color units) 15	" "	15	110.2	5/12/94
1920	Odor (total odor number) 3	" "	< 1	140.1	5/12/94
1925	pH 6.8-8.5	" "	7.6	150.1	5/12/94
1930	Total Dissolved Solids 500	" "	265	160.1	5/19/94
2905	Foaming Agents .5	" "	0.03	425.1	5/12/94

RADIOLOGICAL ANALYSIS
17-550.310(5)
(PWS033)

Parameter		Sample Number	Analysis Result (pCi/l)	Analytical Method	Analysis Error	Analysis Date
4000	Gross Alpha	88927	2.0 ± 0.9	900.0		5/24/94
4012	Photon Emitters					
4020	Radium-226					
4030	Radium-228					
4100	**Gross Beta**					
4101	Man-made beta & photon emitters					
4102	Tritium					
4172	Strontium-89					
4174	Strontium-90					
4264	Iodine-131					
4270	Cesium-134					

HAINES TESTING LABORATORY, INC.
13295 62nd STREET NORTH
CLEARWATER, FLORIDA 34620
TELEPHONE (813)530-5815

June 24, 1994

REPORT NO 88927

FOR Ben Lovelace & Company
6501 Orient Road
Tampa, FL 33610

ANALYSIS. CHLORINE DEMAND

SAMPLE MARKINGS. Water sample taken 5/12/94 @ 2:30 P.M., received 5/12/94 @ 3:30 P.M.

LABORATORY FINDINGS

HYDROGEN SULFIDE 4.3
milligrams per liter

milligrams/liter Dose	pH after Dose	milligrams/liter CHLORINE DEMAND @ 1 Hour	pH @ 18 Hour Contact	milligrams/liter CHLORINE DEMAND @ 18 Hours
0	7.5		7.6	
10	7.7	> 10	7.7	> 10
15	7.7	14.7	7.8	14.6
20	7.7	17.5	7.8	18.2
25	7.8	20.9	7.9	21.1
30	7.85	20.2	7.95	20.6
40	8.1	19.1	8.05	22.0
50	8.2	18.1	8.1	22.0
Blank				
0	6.3		7.3	
1.0	6.8	0	7.7	0.00
2.0	7.2	0.15	7.7	0.10

HAINES TESTING LABORATORY, INC.
FL Certification #84123 & E84039

W.E. HAINES, Ph.D.

ld

Description of Aloha's Seven Springs Service Area

Covered in PSC Docket No 020896-WS Petition 1 for Deletion

The area of this petition, as shown on the attached map, is that contiguous area bounded by the Pinellas/Pasco county line on the SOUTH, Seven Springs Blvd on the WEST and Mitchell Blvd on the NORTH so far as Little Road. At the intersection of Mitchell Blvd and Little Road, the line continues EAST until it intersects with the present northern boundary of Aloha's Service area with Pasco County's service area to the EAST and then SOUTH alone the present eastern boundary of Aloha's Service area and Pasco County's service area to the Hillsborough/Pasco county line.

This area lies within Sections 25, 34, 35, & 36; T 26 S; R 16 E and Sections 30, 31, & 32; T 26 S; R 17 E.

Petition 1 area includes the subdivisions of:

- Wyndtree
- Chelsea Place
- Wyndgate
- Trinity Oaks
- Thousand Oaks (to include that part EAST of Little Rd)

Trinity (Parts of Trinity and most homes in Heritage Springs are serviced by Pasco County Utilities and are outside this petition area.) Aloha's area is further described as:

All properties of Trinity contained in:

Fox Hollow East

Fox Wood Phase I & Phase II

Upper Montclair

Peachtree

Cameron's Pointe

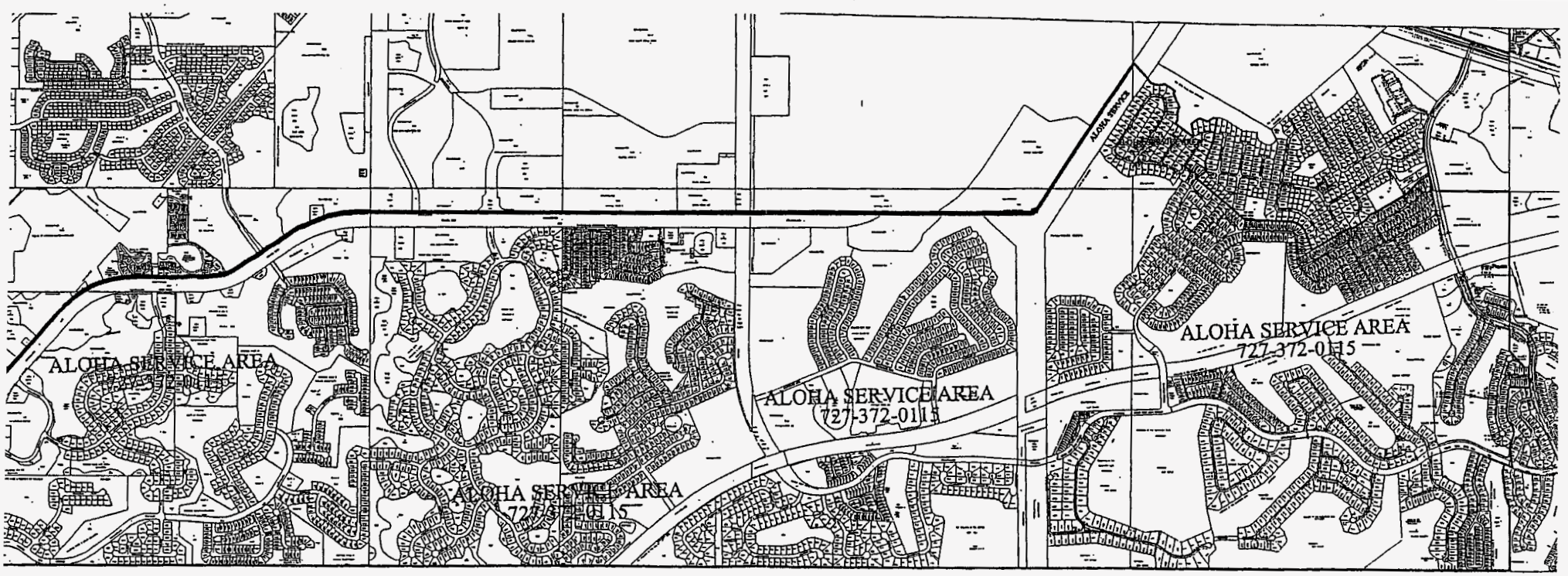
Parts of the following Trinity areas are also inside the petition area:

Fox Wood properties on these roads as well as all roads to the south of these roads.

Edelweiss Loop, Green Ivy Dr, Hammock Park Ct, Larchwood Ct, Maplelawn Ln, Cassia Ln, Tilden Pl, Terralyn Ln, Tecoma Dr, Peppergrass Ct, and Firebrick Ct

Heritage Springs

Morning Rose Pl, Rain Hollow, Courtland Dr, Canberley Ct, and Almondwood Dr



BLACK LINE BOUNDARY
DELINEATES ALOHA UTILITIES SERVICE AREA

TO BE CONSIDERED FOR DELETION
AS PER REQUEST IN PETITION SUBMITTED ON JULY 15, 2002
TO THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NOS. 001503-TP and 020896-WU
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing has been furnished by U.S. Mail or hand-delivery to the following parties on this 18th day of November, 2004.

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