State of Florida

Public Service Commission

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-M-E-M-O-R-A-N-D-U-M-

DATE: May 19, 2005

TO: Director, Division of the Commission Clerk & Administrative Services (Bayó)

FROM: Division of Economic Regulation (Kummer, Daniel, Walden, Jenkins) JDJ
Office of the General Counsel (Jaeger, Helton)

RE: Docket No. 010503-WU – Application for increase in water rates for Seven Springs System in Pasco County by Aloha Utilities, Inc.

AGENDA: 05/31/05 – Post-Hearing Agenda – Participation is Limited to Commissioners and Staff

CRITICAL DATES: Pursuant to Section 120.569(2)(1), decision must be rendered by June 6, 2005

SPECIAL INSTRUCTIONS: None

FILE NAME AND LOCATION: S:\PSC\ECR\WP\010503.RCM.DOC

Case Background

In this rate proceeding for Aloha Utilities, Inc.'s (Aloha or utility) Seven Spring's System, the Commission found that the "overall quality of service provided by Aloha is unsatisfactory." Order No. PSC-02-0593-FOF-WU, issued April 30, 2002, in Docket No. 010503-WS, In re: Application for increase in water rates for Seven Springs System in Pasco County by Aloha Utilities, Inc., p. 20 (Final Order). When it considered what impact, if any, the unsatisfactory quality of service finding should have on its decision, the Commission, among other things, decided that steps had to be taken to combat the "black water" problem. One of these steps was the requirement that:

> The utility shall make improvements starting with Wells Nos. 8 and 9, and then to all of its wells, to implement a treatment process designed to remove at least 98% of the hydrogen sulfide in the raw water. Such improvements to all of the utility's wells shall be placed into service by no later than December 31, 2003. Final Order, p. 30.

When Aloha appealed the Final Order to the First District Court of Appeal, the requirement to make improvements to the wells was stayed. Order No. PSC-02-1056-PCO-WU, issued August 5, 2002, p. 9. When the Court affirmed the Commission's decision, the due date for the well improvements became February 12, 2005.

On June 9, 2004, Aloha moved to modify the requirements of the Final Order, requesting that the requirement to remove 98% of hydrogen sulfide from the raw water be replaced with a requirement that Aloha make improvements as needed to meet a goal of 0.1 mg/L (milligrams per liter) of sulfides in its finished water as that water leaves the treatment facilities of the utility, and that this standard be implemented no later than February 12, 2005. The Commission proposed to approve Aloha's request by Proposed Agency Action Order No. PSC-04-0712-WS-PAA (PAA Order), issued July 20, 2004.

V. Abraham Kurien, Harry Hawcroft, and Edward Wood (the Customers) filed a timely Petition protesting several, but not all, provisions of the PAA Order. The Office of Public Counsel (OPC) also intervened.

The Commission issued a Partial Consummating Order, Order No. PSC-04-0831-CO-WS, on August 25, 2004, which consummated the portions of the PAA Order that were not protested and recognized the portions of the PAA Order contested by the Customers. An administrative hearing was conducted on March 8, 2005. The issues raised by the customers in their protest are addressed in Issues 1 through 3 below. Aloha raised the legal issue, Issue 4, which is also addressed below.

This Commission is vested with jurisdiction over the subject matter by the provisions of Chapter 367, Florida Statutes, including Sections 367.011(2) and (3), 367.081(2), 367.111(2), and 367.121(1)(a), (c), and (d), Florida Statutes (F.S.).

Rulings

The Commission considered several preliminary matters at the outset of the hearing on March 8, 2005. The motions and rulings for each are set out below.

On March 1, 2005, Aloha filed a Verified Motion to Disqualify and Recuse Public Service Commission From All Further Consideration of This Docket. No oral argument was heard. The motion was denied because the allegations contained in the motion were not legally sufficient under Section 120.665, F.S., to demonstrate bias, prejudice, or interest in the proceeding as they were too tenuous and speculative.

Aloha also filed a Motion for Summary Final Order on March 1, 2005. After hearing oral argument, the Commission denied the motion.

At the hearing, Aloha made an *ore tenus* motion to dismiss Dr. Kurien as a party. After the order was entered granting Dr. Kurien intervention, he had moved out of Aloha's service territory. After hearing oral argument, this motion was granted. However, Dr. Kurien was allowed to testify as a witness.

Aloha's counsel also made an *ore tenus* motion at the hearing for modification to the Prehearing Order, which the Commission treated as a motion for reconsideration of the Prehearing Order. After hearing oral argument, this motion was denied.

On March 1, 2005, Aloha filed an Expedited Motion for Continuance. After hearing oral argument, this motion was denied.

Commission staff filed a motion to quash subpoenas and for protective order on March 4, 2005. After hearing oral argument, this motion was granted.

STIPULATIONS

The parties were all agreed that this docked should remain open pending final disposition of the refund requirement for the appeals period.

DISCUSSION OF ISSUES

ISSUE 1: Should the reference to sulfide in "finished water" in the proposed agency action order be stated as a maximum contaminant level for total sulfides of 0.1 mg per liter of delivered water at the point of its entry into the domestic system at the domestic meter?

RECOMMENDATION: No. The reference to sulfide in the "finished water" of 0.1 mg/L should be stated as a goal with specific actions to be taken if that goal is not consistently reached. Attainment of the goal should be determined by testing Aloha's water for total sulfides at the utility's plant sites and at the selected bacteriological test sites (field sites). The goal for the plant sites should be 0.1 mg/L of total sulfides. When Aloha begins to purchase water from the County, the County water should be tested for total sulfides in the same manner as all test sites, and the goal for the bacteriological field test sites should be the higher of the total sulfides level in the County water or 0.1 mg/L of total sulfides in the water. By Order No. PSC-02-0593-FOF-WU, issued April 30, 2002, in this docket, Aloha's quality of service was found to be unsatisfactory. Staff recommends that failure to substantially obtain the goal of 0.1 mg/L of total sulfides in the finished water (or the higher level of the County if the purchased County water has a higher level) should constitute continued provision of unsatisfactory quality of service which is not in the public interest. Staff also recommends that the Commission put Aloha on notice that meeting the goal does not relieve Aloha from ultimately addressing the black and smelly water complaints. In addition, the Commission should retain the option to take additional action as appropriate in the future to address customer complaints, even if Aloha is meeting the 0.1 mg/L goal. (Jaeger, Kummer, Daniel)

POSITION OF THE PARTIES

ALOHA: No. The standard can only reasonably be stated as a goal stating it as a maximum contaminant level is a substantially different requirement and imposes an unreasonable and unprecedented element. Imposing the standard at the domestic meter is unreasonable, inappropriate, costly, and provides no useful information.

HAWCROFT/ WOOD: Yes. To ensure that the "finished water" that met the 0.1 mg/l total sulfide standard at the treatment facility has not deteriorated in quality while it is in the distribution system and prior its to entry into the domestic system, compliance with the standard at the domestic meter is essential.

OPC: Yes, the reference to sulfide in "finished water" in the proposed agency action order should be stated as a maximum containment level for total sulfides of 0.1 mg per liter of delivered water at the point of its entry into the domestic system at the domestic meter.

STAFF ANALYSIS: This issue addresses the general issue of whether the 0.1mg/L criterion specified in the PAA order should be expressed as a goal or a Maximum Contaminant Level (MCL) and at what point compliance should be assessed.

I. Summary of Parties' Arguments

A. Aloha's Arguments

Aloha argues that Witness Kurien's "use and interpretation of the phrase 'maximum contaminant level' stands in stark contrast to the testimony in this case and to the utilization of that same phrase in Florida law." Citing Chapter 403, Florida Statutes, Witness's Porter, Levine, and Sowerby's (staff's DEP witness) testimony, and DEP v. Belleau, 96 ER FALR 86 (Final Order, 1996), Aloha argues that an MCL is a term of art and alleges as follows:

1. For an MCL, a given substance must never exceed a given level, while a goal is something to be strived for to the extent possible both from a technical and economic standpoint (TR 286);
2. TBWA recognizes the 0.1 mg/l standard as a goal (TR 286);
3. EPA and DEP set MCLs for substances that pose a health related risk of sufficient magnitude such that the cost of compliance is justified;
4. The process these agencies go through to set an MCL is very involved, complicated, and time consuming (can take years) (TR 256, 289);
5. A cost benefit analysis is undertaken and involves utility representatives, state regulatory agency staff, water users, and many others who are assembled and who engage in a detailed analysis of the feasibility of setting an MCL (TR 290);
6. Even DEP has not chosen to establish an MCL which did not originate from the EPA (TR 256);
7. If DEP felt there was some inadequacy in a current primary or secondary water standard, it would be trying to do something about it and that DEP is not contemplating imposing or establishing any standard with regard to total sulfides (TR 259);
8. To establish an MCL, a more reliable measurement method would need to be developed (TR 191);
9. Establishment of an MCL, would mean that if that level were exceeded, it would be a violation of Chapter 403 and that proof of violation of a given MCL is proof of pollution. (Aloha's Post Hearing Memorandum, p. 9)

Based on all the above, Aloha states that the TBWA standard is just what it says it is, a goal, and the Commission "should not stray even further into the realm of water quality regulation and attempt to establish an MCL for total sulfides which would only apply to a single utility in the entire state of Florida." In Aloha's Post Hearing Memorandum, the utility argues that the burden of proof pursuant to Section 120.57, F.S., is upon the petitioner, and that any decision of this Commission must be based on competent substantial evidence. Aloha argues that the only pre-filed direct testimony on this issue supporting an MCL was provided by Witness Kurien and that he erroneously referred to maximum contaminant level, standard, goal, compliance level, and action level, interchangeably.

The proper location for testing was addressed by Aloha under Issue 3 in its Post Hearing Memorandum. Staff has summarized Aloha's argument on page 9 in this issue and has set forth in detail in Issue 3 Aloha's argument on the proper location. Aloha argues that the only location

where a test would be meaningful is at the plant site as the water first enters the distribution system.

B. Customer/OPC Arguments

In regard to whether the 0.1 mg/L standard should be stated as a goal, an MCL, or a performance standard, the Customers state that it is immaterial as long as that standard is "complied with at the point of delivery to the customers with actions taken to correct deficiencies as soon as such failure of compliance is detected." (Emphasis supplied by the Customers.) (Customers' Post Hearing Statement, p. 5)

OPC also agrees that whether the terms goal, standard, maximum contaminant level, compliance level, or action level is used is not important. OPC argues that the important point is that the TBWA requires action if total sulfides exceed 0.1 mg/L. OPC notes that other utilities have taken action to significantly reduce black water and rotten egg smell, "without strict measurement and conformity with standards for total sulfide and elemental sulfur levels, such as membrane technologies (Dunedin Municipal Utility), aeration and biological oxidation (Pasco County Utility), and manganese green sand and potassium permanganate oxidation (Port Richey Utility), along with more appropriate adjustment of pH levels." (OPC Post Hearing Statement, p. 10)

OPC argues that the above-noted methods have been proven to be more successful in reducing copper corrosion, and that both the hydrogen peroxide and chlorination methods "are reversible oxidative methods that can result in reformation of total sulfides and the production of elemental sulfur." Therefore, if Aloha is to use an oxidative method, OPC argues that there must be "strict adherence to more stringent standards that lower the levels of these substances that have been considered to be significant factors in the production of black water and rotten-egg smell." (OPC Post Hearing Statement, pp. 10-11)

With regard to the point of compliance, the Customers argue that the critical question is not whether Aloha can meet the standard at the treatment facility, but whether "these methods are sufficiently robust to keep the water stable till it reaches the customers' homes, sometimes 2-4 days later (Witness Porter Transcript p. 317, lines 1, 24) and can maintain that stability in domestic plumbing for at least a reasonable time period after delivery." (Emphasis supplied by the Customers.) (Customers' Post Hearing Statement, p. 5)

In the joint Post Hearing Statement filed by Mr. Hawcroft and Mr. Wood (Joint Customer Statement), the Customers argue that the flushing records of Aloha itself show that the water at the customers' meter is not "clean, clear and safe" as claimed by Aloha. Citing Witness Kurien's Exhibit VAK-19 (part of Exhibit 23), the Customers argue that not only has the water been shown to be a "black, yellow, milky and rusty to brown" color, but also the chlorine residuals have been zero which negates Aloha's engineer's claim that the chlorine residual levels have been met.

The Customers further argue that Aloha's unwillingness to test at the customers' meters demonstrates that it is unable to "guarantee that the 'finished water' has not undergone

deterioration of quality while still in the distribution system." (Customers' Post Hearing Statement, p. 2) Therefore, the Customers disagree with Aloha's premise that the deterioration occurs only in the customers' pipes. The Customers argue that in one instance of the treated water tested at the inflow to the main tank, the sulfide level had gone from "a level of less than 0.01 mg/l of total sulfides at the well sites" to a level of 0.12 mg/L (Ex. 5, VAK 5, TR 193, 291-292, 342), and thus "demonstrates that such deterioration can occur and does occur even in the transmission system." (Customers' Post Hearing Statement, p. 3) Noting that Aloha argued that the above-noted water was only partially treated, the Customers claim that "Aloha must also concede that when total sulfides levels are very high in Well 9 and only a stoichiometrically inadequate amount of chlorine can be added" because of the maximum capacity of the chlorinator at that well, then the water from that well is only partially treated when it enters the distribution system. (Customers' Post Hearing Statement, p. 4)

The Customers conclude that the "widespread inability to provide stability of water in the transmission and distribution system points to either an inherent weakness in the current method, namely its easy reversibility and tendency to produce elemental sulfur, and/or the inadequacy of facilities that result in inability to add the necessary amount of oxidant or the inadequate maintenance of facilities and the distribution system." (Customers' Post Hearing Statement, p. 6)

OPC further notes that Aloha has repeatedly claimed that its responsibility ends at the outlet side of the water meter pursuant to Section 25-30.210, F.A.C. Because Aloha owns all the piping up to that point, OPC argues that "by all common sense standards and the norms of commercial transactions," the testing to verify whether the product meets quality standards should be at the point of delivery, i.e., the outlet on the customer side of the meter. (OPC Post Hearing Statement, p. 4)

Citing Exhibit 5, an excerpt from the Phase II Report of the Technical Review undertaken by Witness Levine, OPC argues that the need to test the water after it has traveled through the distribution system is confirmed by the finding that sulfide reformation occurred. Although OPC admits that the process allowing reformation may not be clearly understood, it notes that there is the presence of sulfur reducing bacteria in the water and that, as has already been identified by the utility's consulting engineer, the reformation process may be related to turbidity induced by colloidal sulfur which may lower disinfection efficiency. (OPC Post Hearing Statement, pp. 10-5) OPC agrees with the Customers that the finding of 0.12 mg/L of total sulfides in the inflow pipe to the storage tank demonstrates that the sulfide reformation can occur prior to the customers' piping. (OPC Post Hearing Statement, p. 7)

Citing the same flushing reports (Ex. 23, VAK-19) as the Customers, OPC states "that finished water is not adequately treated before discharge into the distribution system or . . . the processing method is easily reversible." Also, OPC argues that "[i]f a chlorine booster is necessary to treat water further in the ground storage tank (which has no water softener or water conditioner) before the water left the same day, then "the chlorine decay in Aloha water is much higher than documented by monthly operation reports (MORs) submitted to the FDEP." (OPC Post Hearing Statement, p. 8)

OPC concludes its argument on this issue by noting that the TBWA agrees to maintain the 0.1 mg/L standard up to the point of connection with its customers (member government utilities), and to sample the water at least four times annually. (TR 157) By maintaining the standard up to the point of connection with the member government utilities, OPC argues that the TBWA thereby takes responsibility for maintaining the standard throughout its transmission and distribution system, and that Aloha should do the same. (OPC Post Hearing Statement, p. 11)

II. Staff Discussion

MCL vs. goal. Utility witness Porter testified that the standard for total sulfides as established by TBWA, to which the Citizens had already agreed, was developed as a goal and not an MCL. [1] He explained that a goal is a target to be strived for, as opposed to an MCL which is a maximum concentration that cannot be exceeded. (TR 153, 286) Witness Porter also testified that an MCL is arrived at after stringent testing and intense study and typically applies to some health risk. (TR 289-91)

Staff witness Sowerby explained that the promulgation of an MCL is an involved process, including a review of contaminants, health studies, laboratory tests, and cost/benefit. He said that in his twelve years with the Florida Drinking Water Program, establishment of an MCL has not been attempted that did not originate with the EPA. (TR 256)

Witness Kurien noted that he based his terminology on a Tampa Bay Water Authority (TBWA) reference, in which the terms goal, MCL, and standard appear to be used interchangeably. (Ex. 23, VAK-26,) His recommendation is that the regional standard adopted by TBWA is an appropriate standard. (TR 153) His concern is that some objective measurement be established that would require some remedial action by Aloha if the level specified is not met. (TR 353)

[1] Staff would like to clarify up front that the standard referred to in Staff recommendations for Issues 1, 2, and 3, is the 0.1mg/L of sulfides as defined by the TBWA. While the testimony in the hearing often refers to hydrogen sulfide, the test or standard all parties have agreed to accept is one for "sulfides," or "total sulfides." While there may be a technical difference between the two terms, staff relies on the assumption that that the parties used the two terms interchangeably when referring to the problem and solutions proposed in this docket.

Several documents filed in the docket support this assumption. Aloha's motion to modify the Rate Case order dated June 9, 2004 speaks to a test for sulfides as used by TBWA. That document cites a "maximum total sulfide standard of 0.1 mg/L" as being the TBWA standard. OPC, in a letter to staff dated July 23, 2003 notes that "one such standard [for replacing the 98% removal requirement] is a maximum total sulfide level of 0.1 mg/L in the finished water." Aloha again appears to use the two terms interchangeably in its response to a staff data request dated March 29, 2004 when it describes hydrogen peroxide oxidation as "a process...capable of producing a finished water which will meet the Tampa Water target hydrogen sulfide concentration of 0.1mg/L...." Commission Order No. PSC-04-0712-PAA-WS poses the modification to the 98% removal language as "a goal of 0.1 mg/L of sulfides." Finally, a letter from Dr. Kurien filed by OPC on June 16, 2004, proposing modifications to the ordering language proposed by Aloha states: "The reference to sulfide in "finished water" should be stated as a maximum contaminant level for total sulfides of 0.1 mg per liter of delivered water at the point of its entry into the domestics system at the domestic meter." Dr. Kurien appears only to be taking issue with the point of measurement, not the measurement tool itself. Therefore staff believes the parties understood and agreed that the sulfide concentration of 0.1mg/L referred to in the TBWA standard was adequate to address the concerns raised in this docket.

Because the term "MCL" is a legal term of art used by the EPA and the DEP only after intense study and review, Staff recommends that the standard of 0.1 mg/L of total sulfides in the finished water should be stated as a goal.

Point of compliance. There are several potential locations for the point of compliance with the goal or MCL, including (1) the finished water as that water leaves the treatment facilities of the utility and enters the distribution system as proposed by Aloha (plant sites), (2) within the distribution system (field sites), and (3) at the point of the water's entry into the domestic system at the domestic meter as proposed by the Customers (customers' meters). For the purposes of this discussion and in Issue 3, Staff will refer to the wells as plant sites to better capture the concept of the connection between the water source and the transmission/distribution system.

Aloha maintains that the only reasonable point of measurement is at the point the water enters the distribution system. It is at that point the utility has complete control over the water and can identify and adjust treatment at wells failing to meet the established goal. (TR 286-287, 289, 296) Witness Porter notes that, while TBWA does strive to attain the same standard throughout its transmission system, its obligation ceases once its water enters the distribution system of a member government, which Aloha maintains is analogous to Aloha's plant sites. (TR 288) He believes that water samples collected for testing should be gathered at the plant sites where sampling and test procedures can be closely controlled. Witness Porter maintains that field tests, such as those conducted at domestic meters would be highly impractical and would lead to unacceptably low accuracy and precision because the water from Aloha's plant sites is intermixed and there is no direct correlation between what a particular water plant is doing, and the water quality at a customer's home. He noted that if a water sample were tested in the distribution system, it may be two or three days old, and if it failed to meet the standard, the only conclusion is that a problem exists. It does not show where the problem is. (TR 317-318) To further complicate the issue, the water in the distribution system will already have been disinfected using chloramines, and the water cannot be retreated for sulfides. (TR 321-322)

Testimony by Witness Sowerby indicated that the majority of tests performed on drinking water are conducted from samples taken at the entry point to the water distribution system, although the DEP would not object if a utility were to sample more than the minimum requirements. (TR 260-261) Samples which are taken in the distribution system would include chlorine residual, disinfection by-products, and coliform bacteria. Those things may change throughout the distribution system, whereas most of the other water quality parameters would not. (TR 262-263)

The Citizens maintain that, consistent with the TBWA standard, testing should be done when the water leaves the utility's system, or at the customers' meters. Witness Kurien believes it is imperative that the utility deliver water to the customers that do not exceed the performance standard or goal for total sulfides at the point of connection with the customer. (TR 156-157) He contends that this position is consistent with TBWA striving to achieve its goal of 0.1 mg/L throughout its transmission/distribution system to the point of connection with its member governments. (TR 157-158, 286-287) TBWA's point of delivery is the connection with member governments and Aloha's point of delivery in its transmission and distribution system is the

outlet side of the customer meter. (TR 157-158, 165, 184, 356) His concern is that there could be uncontrolled conditions in the distribution system that could result in the formation of black water and rotten egg smell that would enter the customers' homes from the domestic meter and that testing at the entry to the distribution system will not capture these problems. (TR 166)

Witness Kurien recognized the difficulty of testing at the meter. He notes that water from eight different wells pumps into Aloha's water system. Four wells pump into a storage tank, and the other four wells pump directly into the water system. (TR 158) In addition, Aloha will be purchasing water from Pasco County. (TR 158-159, 172) However, he maintains that the only meaningful way to measure compliance with a standard is by testing at the outlet side of the domestic meter in the distribution system area of each plant site. (TR 160, 165) Witness Kurien notes that, in one of Witness Levine's tests, treated water from a well on its way to a storage tank showed an increase in hydrogen sulfide level from 0.01 to 0.12 mg/L. He has concerns that this same phenomenon might be occurring in other parts of Aloha's distribution system where the water does not go into a storage tank but directly into the transmission system. (TR 171, 342-344) He also testified that there is evidence that shows a significant difference between the free chlorine at the treatment facility and at the remote sampling point, indicating significant consumption of free chlorine residual within the transmission and distribution system. Reformation of total sulfides is a possible explanation for this change in chlorine residual. (TR 159-160, 342-346)

Staff believes that the TBWA philosophy of striving to attain a goal of not greater than 0.1 mg/L of total sulfides in its system applies only to the point of connection with member governments because that is the portion of its system over which TBWA has ownership and control. Therefore, it is reasonable that TBWA would not be sampling within a member government's transmission and distribution system. Aloha's transmission and distribution system are facilities over which Aloha has control. Rule 25-30.231, Florida Administrative Code (F.A.C.), requires each utility to operate and maintain in safe, efficient and proper condition all the facilities and equipment used in connection with the distribution, regulation, measurement and delivery of water service to the customer up to and including the point of delivery into the piping owned by the customer. Rule 25-30.210(7), F.A.C., defines point of delivery for water systems as the outlet connection of the meter for metered service. Staff believes this is consistent with the TBWA measurement points. (TR 153, 157, and 165)

Staff also believes that the changing characteristics of Aloha's water, as testified to by Witness Kurien from his review of Witness Levine's tests, merit concern. (TR 166, 272) Based on the evidence presented, it appears that the problem with the current chlorination process is that the oxidizing process produces either elemental sulfur or a sulfate, and the total sulfur load remains in the treated water. (TR 161-162) Further, based on the dissipation of chlorine to chloride, and the action of sulfur reducing bacteria, sulfur or sulfate can be converted back to sulfides, which will then react with the customers' copper pipes to form "black water" (copper sulfide). (TR 229) It is already established in this docket that some customers are receiving discolored or black water in their homes. (TR 344) The treatment provided by Aloha through chlorination, coupled with the tests performed by Aloha at its plant sites, show compliance with DEP regulations. However, because Aloha customers continue to experience black water and

rotten egg smell, it is logical to conclude something more is needed to further address the black water complaints.

It is Staff's opinion that the Customers are merely asking that the finished water delivered to their pipes, to the extent possible, be sufficiently stable so as to not immediately begin reacting with their pipes. Based on the past ten-year history with "black water," staff believes that this expectation is reasonable. Staff also believes that Aloha's argument that testing at points within the system will make it difficult to identify which well is causing the failure has merit, but Staff believes that the utility should be held responsible for what happens while the water is within its facilities.

However, Staff believes there are several problems with the Customers' request that Aloha perform duplicative tests at the outlet side of 16 different customer meters each month at a point most distant from each of the plant sites. (TR 165) First, there is no way to test the water at a customer's meter without either cutting into the line in front or back of the meter and putting in some kind of draw-off valve or faucet. This would require Aloha to continually go onto the property of different customers and dig, and possibly tear up their yard and erect what might be unsightly faucets or hose bibs. Staff believes that this might lead to even worse relations between Aloha and its customers. Second, to minimize customer dissatisfaction with this intrusion, Aloha could seek customer volunteers, but obtaining 16 suitably located customer volunteers each month might be difficult, if not impossible. Finally, because of the positioning of the wells and their interconnections, it is hard to determine the source of the water when more than one source might be nearby.

Staff notes that Aloha has 30 bacteriological test sites distributed throughout the utility's service area so that the utility can monitor what is happening on a bacteriological basis in its system as required by DEP. (TR 217-218) Moreover, as testified to by Witness Levine, water can be drawn off and tested for hydrogen sulfides at these sites. (TR 218) These test sites are already being used by Aloha and would cause little or no inconvenience to either Aloha or the customers.

Staff agrees with the utility that water quality should be measured at the plant sites to ensure that the water going into the distribution system meets the goal. Therefore, staff recommends that the water should be tested at the plant sites for compliance with the goal and that the goal for the plant sites should be 0.1 mg/L of total sulfides. In addition, as a compromise between the Utility and the customers, Staff recommends that compliance with the goal be assessed at selected bacteriological test sites already set within the distribution system. This will eliminate the need to install new tap sites. Staff also recognizes that water introduced into Aloha's system from Pasco County may impact the level of total sulfides in the water delivered to customers. Witness Porter notes that Pasco County (County) refused to incorporate the obligation to meet 0.1 mg/L goal in its purchased water contract with Aloha. (TR 319-20) He also noted that there is no space at the interconnection sites to treat the purchased water, even if re-treatment was feasible. (TR 320, 327) Therefore, once Aloha begins taking water from the County, Aloha should test that water monthly, and staff recommends that the goal for the tests out in the field should be the greater of the County total sulfide level or 0.1 mg/L. The goal for

the tests at Aloha's plants should remain at 0.1 mg/L of total sulfides, regardless of the level of sulfides in the water purchased from the County.

Summary

Staff recommends that compliance be measured at two locations: (1) at the plant sites consistent with the TBWA goal, and (2) at selected field (bacteriological test) sites located out in the distribution system to address the customers' concerns about re-conversion, with the goal being the higher of the TBWA goal or the County level. Those locations are described in detail below.

The goal for the plant sites should be 0.1 mg/L of total sulfides. In order to determine whether Aloha is meeting the goal of 0.1 mg/L of total sulfides at the plant sites, Staff recommends that the finished water should be tested as it first enters the distribution system, after it has been treated at the plant sites. Water from eight different wells pump into Aloha's distribution system. Four of the wells pump into storage tanks and then into the distribution system. The other four wells pump directly into the distribution system. (TR 158) For those wells where the water enters storage tanks prior to entering the distribution system, the finished water should be tested after the storage tanks and final treatment, as the water enters the distribution system. (TR 158) Staff will refer to these testing locations as the plant sites.

In order to determine whether Aloha is meeting the goal at the bacteriological test sites, Staff recommends that Aloha should test at the sites which are distributed throughout the utility's service area and are currently approved by DEP for compliance with coliform levels. (TR 217-218). Staff believes that the major problems with "black water" and rotten-egg smell are concentrated in the southern half of Aloha's Seven Springs division. (TR 328-329) For the purpose of determining compliance, therefore, staff recommends that, in each round of testing, a majority of the tests (six or more out of ten) should be taken in this southern area. These sites are already being used by Aloha and would cause little or no inconvenience to either Aloha or the customers. Staff will refer to these testing locations as the field sites. As previously discussed, there are a number of concerns with using customer meters to test for total sulfides; therefore, staff recommends that customer meters not be used in the testing process.

Finally, Staff recommends that the water purchased from Pasco County should be tested at the point of interconnection with Aloha's distribution system. These test results will be used to establish the goal for the field test sites if the level of total sulfides in the County water exceeds 0.1 mg/L. Staff will refer to this testing site as the interconnection site.

By the Final Order, Aloha's quality of service was found to be unsatisfactory. Staff believes that failure to substantially obtain the goal of 0.1 mg/L of sulfide in the finished water (or the higher level of Pasco County at the field sites if the purchased County water has a higher level) should constitute continued provision of unsatisfactory quality of service which is not in the public interest. Staff also recommends that the Commission put Aloha on notice that meeting

the goal agreed to by the parties does not relieve Aloha from ultimately addressing the black and smelly water complaints. The Commission should retain the option to take additional action as appropriate in the future to address customer complaints, even if Aloha is meeting the 0.1 mg/L goal.

ISSUE 2: Should the improvements be such that sulfide present in raw water or generated during treatment and transmission be removed, not converted, to a level not to exceed 0.1 mg/L in finished water delivered at the point of entry into the domestic system?

PRIMARY RECOMMENDATION: No. Consistent with past Commission decisions, the Commission should not order a specific treatment methodology, including specifying removal versus conversion. The hydrogen peroxide treatment or other upgrade proposed by Aloha should be given a chance to work. However, if the utility opts for a treatment which converts rather than removes total sulfides, it should provide to the PSC within 60 days of issuance of the final order on this recommendation, an analysis on elemental sulfer filtration options as described in the Primary Staff Analysis. (Jaeger, Kummer, Walden, Daniel)

ALTERNATE RECOMMENDATION: No. Removal (versus conversion) of total sulfides should not be required immediately. The hydrogen peroxide or other conversion methodology should be given a chance to work. However, by November 1, 2006, Aloha should be required to complete the engineering design and permitting for a process to remove hydrogen sulfides at Wells 8 and 9 so that construction can begin expeditiously, if needed. If the oxidation method chosen by Aloha does not reduce the level of verifiable about smelly or black water occurrences to an uncommon occurrence by November 1, 2006, Aloha should be required to initiate the construction needed to have a hydrogen sulfide removal process placed in service by November 1, 2007.

Aloha should be required to file monthly reports beginning in October 2005, on: (1) The use of hydrogen peroxide, (2) The number of customer smelly or black water complaints and any verification of those complaints by Aloha, and (3) a timetable for the engineering design, permitting, and, if to be built, construction of a hydrogen sulfide removal process for Wells 8 and 9. (Jenkins, Helton)

POSITION OF THE PARTIES:

ALOHA: No. Imposing such improvements is contrary to any requirement proposed on any utility anywhere in the state and is directly contrary to the stated position of the PSC that it will not "micro-manage" the Utility, and will cost millions of dollars with no demonstrated benefit.

HAWCROFT/ WOOD: Yes. The reason for imposing stringent standards results from the inability of the processing method and its technical implementation as practiced by Aloha to produce stable water in the distribution system and the domestic plumbing. This logic also applies to the new method contemplated by Aloha for future use.

OPC: Yes, the improvements should be such that sulfide present in raw water or generated during treatment and transmission be removed, not converted, to a level not to exceed 0.1 mg/L, in finished water delivered at the point of entry into the domestic system, if this can be done economically.

GENERAL STAFF ANALYSIS:

I. Credentials of Witness Kurien

A. Aloha's Arguments

Aloha argues that the only testimony or evidence in the record in support of the position that hydrogen sulfide should be removed rather than converted is provided by Witness Kurien. Although the Commission denied Aloha's motion to strike the testimony of Witness Kurien, Aloha argues that this "ruling neither confers upon the witness the status of an expert, nor does it establish the weight that should be given to his testimony." Therefore, Aloha divided its argument into two parts: (1) the weight that should be afforded to the testimony of the various witnesses given their respective expertise, and (2) the evidence presented by the witnesses as it relates to this substantive issue.

As regards to Witness Kurien's expertise, Aloha listed the following 22 instances where Dr. Kurien did not have expertise:

1. He is not currently a licensed doctor in the state of Florida, or in any state.
2. No part of his medical training consists of courses specifically about water treatment plants or water treatment methods.
3. He has never taken any engineering courses.
4. He is not familiar with the standard practices of the engineering profession or the engineering method.
5. He does not hold himself out as an expert in engineering.
6. None of the articles he has published have been about engineering, water chemistry, total sulfides in drinking water, or water treatment.
7. He has not taken any courses in water chemistry.
8. He has not taken any courses in water hydraulics.
9. He has not taken any courses about water distribution system design.
10. He has not taken any courses with regard to water treatment plant design.
11. He has never taken courses with regard to water treatment processes.
12. He does not hold himself an expert in water treatment plant design.
13. He does not hold himself as an expert in water treatment plant operation.
14. He does not hold himself as an expert in the hydraulics of water treatment systems.
15. He does not hold himself as an expert in DEP or EPA regulations.
16. He has no training or experience in the development or estimating costs of water systems.
17. He has no training or experience in the development or estimating costs of operation of water systems.
18. He has never conducted any pilot studies for water plants or modifications to water plants.
19. He does not consider himself sufficiently qualified to conduct the audits that were conducted by Witness Levine.

20. He has no specific training or experience in sampling and testing and interpretation of the rules of testing and sampling of drinking water.
21. He has never personally conducted water sampling testing and interpretation of such results in accordance with standard methods.
22. He has not personally conducted any study regarding the efficacy of removal versus conversion of total sulfides. (Aloha's Post-Hearing Memorandum, pp. 11-12)

Aloha further contends that Witness Kurien's credentials as a medical doctor have no "relationship whatsoever to the relevant issues in this proceeding." Moreover, Aloha argues that there is no evidence that Witness Kurien's undergraduate degree in chemistry from the University of Mysore in India is "accredited by the State of Florida or the United States Department of Education pursuant to Section 817.567(1), Florida Statutes." (TR 131-132) Based on this complete lack of demonstrated expertise, Aloha states that Witness Kurien's testimony at "TR 156-158, 161, TR 165-168, and 171-173 must be afforded no weight, as the entirety of those pages constitute testimony of Witness Kurien about water hydraulics, water distribution, water processing, water testing, water plant design, water plant operation and maintenance and engineering, water chemistry, and the financial aspects of all the above." Also, Aloha argues that Witness Kurien's testimony found at TR 270-281 and TR 340-356 is opinion testimony outside his expertise and must be afforded little or no weight. (Aloha's Post-Hearing Memorandum, pp. 12-13)

On the other hand, Aloha argues that the credentials of its two experts, Witness Levine and Witness Porter, are substantial. Witness Levine demonstrated that she has "more than 30 years of training and experience in areas related to engineering, biological and environmental science, water chemistry and environmental engineering, including a PhD in environmental engineering." Witness Porter's testimony showed that he had "32 years of experience in the operation, management, design and troubleshooting of water treatment facilities and having taught 14 years in the area at a community college (TR 284)." Where Witness Kurien's testimony conflicts with Aloha's two experts, Aloha concludes that "Witness Kurien's positions can be given little, if any, weight whatsoever." (Aloha's Post-Hearing Memorandum, p. 18)

B. OPC's Arguments

In OPC's Post Hearing Statement (OPC's Statement), OPC first addressed Aloha's attack on the credentials of Witness Kurien. Citing the cases of Long v. State, 622 So. 2d 536 (Fla. 1st DCA 1993), review denied, 629 So. 2d 133 (Fla. 1993)(construed section 817.567, Florida Statutes, applies to only intentional misstatements), and Strang v. Satz, 884 F. Supp. 504 (S.D. Fla. 1995)(found that construed section 817.567, F.S., prohibiting people from claiming to hold academic degrees or titles unless such degrees were conferred by accredited institutions violated the First Amendment in that it was not narrowly tailored to achieve a substantial government interest). OPC argues that Aloha's statement "that Witness Kurien 'cannot say he has an undergraduate degree in chemistry under Florida Law' is completely contradicted" by those two cases.

C. Staff Analysis

As ruled on at hearing, Witness Kurien, through working on this problem some 12 hours a day for 3 and 1/2 years for an estimated 8-10,000 hours of study, "has certainly acquired" the expertise to be able to give expert testimony in this proceeding. (TR 133-141, 145, 180) Pursuant to Section 90.702, F. S., staff believes that Witness Kurien has demonstrated that he has the knowledge, skill, training and education to testify as an expert. Therefore, staff believes that the Commission may give whatever weight it deems appropriate to Witness Kurien's testimony.

II. Substantive Issues

A. Aloha's Arguments

As regards the substantive issue, Aloha argues that Witness Kurien's testimony and theory that the elemental sulfur remains in the water subsequent to oxidation and converts back to total sulfides or reacts with the customers' pipes to form "black water" (copper sulfide) is based on complete and uncorroborated hearsay contained in Exhibits 8 and 9. Moreover, Aloha argues that even in Exhibit 8, the 1991 article by Troy Lyn, Mr. Lyn only "suggests a correlation could exist between black water and the presence of sulfur," and that the "article itself relates to the relationship of turbidity . . . to chlorination of water containing total sulfides." Aloha concludes that "the article presents no proof that the mere presence of elemental sulfur will or can result in black water." (Aloha's Post-Hearing Memorandum, p. 15)

Finally, as regards turbidity being an indicator of the presence of elemental sulfur and lower disinfection efficiency, Aloha points to the testimony of Witness Porter stating that there was "absolutely no indication of disinfection inefficiency," and that in fact the opposite was true, with Aloha's disinfection process operating efficiently. (TR 292) (Aloha's Post-Hearing Memorandum, pp. 15-16)

Based on all the above, Aloha concludes that "Witness Kurien's proposal that removal rather than conversion of total sulfides is necessary and appropriate is wholly unsubstantiated and rebutted," and the Commission must find that Witness Kurien has failed to carry his burden. Or, even if he has carried his initial burden, Aloha argues that the underlying basis for his theory has clearly been rebutted. Therefore, Aloha states that the Commission "should not require Aloha to implement a specific treatment alternative which is clearly contrary to the longstanding" Commission practice against micro-management as stated in Order No. PSC-04-0712-PAA-WU, at p. 38. (TR 292) (Aloha's Post-Hearing Memorandum, p. 16)

B. Customers' Arguments

The Customers argue that "Aloha has not provided any evidence to show that the method that it uses now and intends to use in the future is capable of producing 'finished water' that remains stable in the distribution system." (Customer Post Hearing Statement, p. 7) Although Rule 62-555.315(5), F.A.C. (Customers refer erroneously to Rule 62-555.355(5)), does not apply to Aloha's wells (see TR 263), the Customers argue that it should still be considered. The Customers state that for the control of copper corrosion and black water, the rule's "guidelines emphasize the need to remove elemental sulfur from finished water if chlorination alone is used

to process water and the hydrogen sulfide level in source water is higher than 0.3 mg/L." (TR 253-254) Customers recognize as a legal reality that the rule does not apply to Aloha's existing wells. However, they suggest that, because Aloha's wells contain more hydrogen sulfide than this threshold level of 0.3 mg/L, at least intermittently, as a "scientific and practical reality," the rule is instructive. (Customer Post Hearing Statement, pp. 7-8)

The Customers also argue that Aloha's two witnesses, as well as other water processing experts, concur that the presence of elemental sulfur in the finished water can diminish chlorine's disinfection capability, and can be associated with black water and a rotten-egg smell due to the activity of sulfur reducing bacteria. (TR 341, Exs. 6, 7). Also, the Customers disagree with Aloha's statement that the deterioration of the water quality is exclusively confined to the domestic plumbing and exacerbated by the removal of chlorine by water softeners. See VAK 20 in Exhibit 23.

Therefore, the Customers argue that it is essential that either almost all of the hydrogen sulfide (98%) should be removed as required by the Final Order, or the elemental sulfur should be removed if Aloha continues to use oxidation and does not use removal methods coupled with pH adjustments used by neighboring utilities. The Customers argue that the whole purpose of the Final Order in requiring the removal of 98% of the hydrogen sulfide from the raw water was to reduce the incidence of problems with black water and rotten-egg smell. The Customers do not believe that the use of oxidation alone will be sufficient to alleviate their problems. (Customer Post-Hearing Statement, pp. 8-9)

C. OPC's Arguments

OPC reiterates and agrees with the arguments expressed by the Customers above, and especially with the use of the guidelines contained in Rule 62-555.315(5), F.A.C., and the hazards of using oxidation alone without associated removal of elemental sulfur to correct the black water and rotten-egg smell problems. OPC notes that at the time the Final Order was issued on April 30, 2002, the two methods being considered for use to significantly reduce black water and associated complaints were packed tower aeration and the MIEX resin method. Under these methods, the total sulfur load was reduced because the hydrogen sulfide were either expelled or extracted from the source water. (OPC Post Hearing Statement, pp. 12-13)

OPC recognizes that the hydrogen peroxide oxidation method is a more complex and sophisticated oxidation method than chlorination. However, it argues that "[u]nless continuous monitoring of hydrogen sulfide levels are undertaken at all wells and in the water purchased from Pasco County Utility and stoichiometrically calculated doses of hydrogen peroxide are injected into the source water, it would appear to be impossible to reduce the concentration of elemental sulfur to minimal levels." OPC states that this does not preclude Aloha from using the hydrogen peroxide method, but does require "the insertion of an extremely low level of elemental sulfur as an additional standard, or the inclusion of elemental sulfur within the total sulfide goal of 0.1 mg/L as a performance standard." (OPC Post Hearing Statement, pp. 13-14)

Therefore, OPC concludes that the "Commission should require removal of sulfides to a level not to exceed 0.1 mg/L in finished water delivered at the point of entry into the domestic system if this can be done economically." Noting that Aloha had provided estimates of high cost

systems in a previous proceeding, OPC states that Aloha should be directed "to submit alternative proposals for lower cost methods of removing at least a portion of the sulfides from its water," and "prioritize treatment proposals and indicate where the most improvement could be obtained for the least cost." (OPC Post Hearing Statement, p. 15)

PRIMARY STAFF ANALYSIS: At the June 29, 2004 Agenda Conference, the Commission considered Aloha's Motion to Modify Order No. PSC-02-0593-FOF-WU (Final Order) issued April 30, 2002, which required removal of 98% of the hydrogen sulfide from Aloha's water. Although the Final Order was upheld by the First District Court of Appeal, the parties agreed that the Commission should modify that provision of the Final Order because the original standard of 98% removal was deemed unattainable on a system-wide basis. Primary Staff is concerned that Aloha now wants to go to a different type of oxidation process using hydrogen peroxide and that this hydrogen peroxide methodology does not appear to have much of a proven track record when it comes to treating water for the removal of total sulfides. (TR 273)

Historical Perspective. Primary Staff believes that there is indication, both in the Final Order and in Witness Kurien's and Witness Porter's testimony, that it is the southern half of Aloha's Seven Springs division, around Wells 8 and 9, that is having the most problem with black water, and that the problem seemed to become a major problem shortly after those wells were placed on line. (TR 280, 328-329) On page 29 of the Final Order, the Commission found:

> As an initial step to combat the "black water" problem, we note that shortly after Wells Nos. 8 and 9 were placed into service in late 1995, the complaints on "black water" sky-rocketed. OPC witness Biddy suspects that Wells Nos. 8 and 9 have hydrogen sulfides spikes. Also, those wells are the closest to the subdivisions experiencing the worst "black water" problems. Although Aloha's Seven Springs water system is totally interconnected, we believe than any solution to the "black water" problem must begin with Wells Nos. 8 and 9.

Primary Staff believes nothing has changed since that finding. Pursuant to the Final Order, the improvements were originally to be in place by December 31, 2003, and, because of the appeal and partial stay, that requirement was moved back to February 12, 2005. And yet, even as of the time of the March 8 administrative hearing, Aloha's Witnesses indicated that no improvements had been put on line for any wells. (TR 326) Furthermore, as noted by Aloha's counsel (TR 75), the partial Consummating Order required Aloha to "make improvements to its wells 8 and 9 and then to all its wells as needed to meet a goal of 0.1 mg/L of sulfides in its finished water . . . by no later than February 12, 2005." It appears that Aloha is going forward with its plans to install the hydrogen peroxide treatment process.

Aloha's counsel argues that Aloha is currently meeting the 0.1 mg/L standard and was meeting this standard without any improvements even prior to February 12, 2005. (TR 26, 27, and 37) Staff believes that both the testimony of Witness Levine and Witness Kurien showed that improvements were needed to Wells 8 and 9, whether it be removal, use of the hydrogen peroxide methodology, or upgrading the current chlorination methodology employed by Aloha. (TR 216-217, 271-273) Witness Levine admitted that the chlorination "system as it currently exists . . . is in need of upgrading." (TR 216-217) Moreover, Witness Kurien thought Well 9

particularly was "under-engineered" and the chlorination capability at that well was just not sufficient to handle the level of total sulfides found in that well. (TR 272-273)

Aloha requested the change in the standard in June, 2004 and the PAA Order proposing to approve the change was issued July 20, 2004. Up to the time of the issuance of the Partial Consummating Order on August 25, 2004, Primary Staff believes that Aloha should have known that pursuant to the Final Order it had until February 12, 2005 to make improvements to Wells 8 and 9 designed to reduce the black-water and rotten-egg smell problems – some five and one/half months.

Specific treatment methodology. No witnesses disputed Aloha witness Porter's testimony that if removal of total sulfides is desired, it will be an extremely costly project, costing over $10 million. Based on a study completed in 2002 by Witness Porter on the cost of conversion, he agreed that implementation of that process would likely result in at least a 100% increase in Aloha's rates. (TR 326) As stated in the PAA order, oxidation would represent a significantly less expensive method of treatment. Aloha's estimated costs from that Order are:

Treatment Option	Conceptual Capital Cost	Conceptual O&M Cost	Estimated Rate Impact
Packed Tower Aeration	$14,500,000	$3,100,000	261.95%
H2O2 Oxidation – Rental	$3,500,000	$390,000	43.85%
H2O2 Oxidation – Purchase	$4,000,000	$340,000	44.40%
Ozone Oxidation	$6,900,000	$520,000	72.99%
H2O2 Oxidation/Membrane – Rental	$11,800,000	$580,000	108.09%
H2O2 Oxidation/Membrane – Purchase	$12,300,000	$530,000	108.64%

During the hearing, Aloha witness Porter also noted that these figures were based on 2002 costs and the impact of inflation and shortages of certain materials could increase these estimates significantly. (TR 324-325)

While he declined to recommend a specific treatment, Witness Kurien expressed reservations concerning the hydrogen peroxide process. (TR 172) He believes the method simply converts the sulfides to another form of sulfur and causes the sulfur load in the water to remain the same. (TR 353) Processing methods using chlorination and hydrogen peroxide are reversible oxidative methods that can result in the sulfides being reduced to either elemental sulfur or sulfate, but which may be able, because of sulfur reducing bacteria and the dissipation of chlorine to chloride, to reform into sulfides. (TR 353-354) Therefore, the risk of reconversion to sulfides remains. (TR 162) Witness Kurien included, as Exhibit VAK-9 (Ex. 9) to his direct testimony, excerpts from a 1992 study which indicated that the oxidation of total sulfides can produce large amounts of elemental sulfur. The presence of elemental sulfur increases the turbidity of the water and can result in black water. (TR 162) If conditions that determine water quality change (from the time the water enters the distribution system until it arrives at the customers' meters), then there could be the reformation of hydrogen sulfide with its rotten-egg smell and tendency to react with the customers' copper pipes to form copper sulfide (black water). (TR 166) Witness Levine, in her Phase II Report, found that the sulfur in the water could be a problem within the transmission system of Aloha Utilities. (TR 156) Witness

Sowerby also noted that elemental sulfur, under the right conditions, can be converted (or chemically reduced) back to sulfides leading to potential problems with black water. (TR 253)

Witness Kurien also noted that with Aloha's current treatment system, the level of total sulfides exceeded the stoichiometrical level of chlorine that could be added to the water, and as a result, elemental sulfur was always produced. (TR 163) The presence of elemental sulfur can cause problems because it can act as a hiding place for bacteria, which act on both elemental sulfur and sulfate to convert them back into sulfides. He maintains that with oxidation, there will always be some elemental sulfur. (TR 271-2) Witness Kurien believes treatment with hydrogen peroxide as suggested by Aloha would allow the elemental sulfur to precipitate out and be filtered off. Based on a project undertaken by Witness Levine in Hillsborough County, Witness Kurien suggests that Witness Levine is familiar with the process requirements. (TR 273) Therefore, Witness Kurien suggests that if oxidation is the method chosen by Aloha, either the elemental sulfur should be filtered out, or a standard for elemental sulfur should be imposed to lessen the amount going into the domestic water supply consistent with Witness Levine's findings in the Hillsborough study.

Staff notes that there are no simple tests for elemental sulfur, but the presence of sulfur might be ascertained by scanning with an electron micrograph. (TR 276, 280, 349) Witness Kurien agreed that there is currently no accepted test for elemental sulfur. (TR 181) However, he suggested testing the turbidity of the water before it is processed and again after it is processed, with the difference in the turbidity being indicative of the level of elemental sulfur present. (TR 276)

Witness Levine testified that a pilot test using hydrogen peroxide is being conducted and she was "pushing the limits" to determine what caused the adverse reactions to try to prevent them. (TR 225) While these tests are still occurring, so far, the results have shown no reversion to hydrogen sulfides. She also states several times that the goal of the testing is to produce stable water which does not experience reconversion. (TR 216, 223, 225) She anticipated several more months of tests before the exact treatment methodology will be refined for implementation on a system basis. (TR 225-226) Additionally, Aloha is being required to convert to the use of chloramines in place of chlorination for disinfection due to a similar change in treatment by TBWA. Because Aloha may purchase water from the TBWA system through Pasco County, treatment methodologies must be consistent. Witness Levine sees benefits from the switch to chloramination, since both liquid chlorine and ammonium hydroxide raise the pH of the water, causing diminished likelihood of sulfide odor. The odor comes from total sulfides in a nonionized form. One of the results of using hydrogen peroxide for treatment is the addition of an oxidation step to stabilize the water. (TR 216, 231-233) It is important to make sure that the water is stable and whatever form the sulfur is in does not result in reversion or reaction. (TR 227)

Although it is clear to Primary Staff that improvements are needed, it is also equally unclear what those improvements should be. OPC and the customers argue that if the hydrogen peroxide methodology is used, then it should also be coupled with the requirement for the removal of the elemental sulfur which will be formed by the oxidative process. However, Primary Staff notes that Aloha has hired two experts with over 30-years experience each

addressing this type of problem. (TR 284, and Exhibit 20) Therefore, Primary Staff believes that Aloha should be allowed to follow the recommendations of these experts as long as some meaningful improvements to Wells 8 and 9 are made by October 1, 2005. Based on the record, Primary Staff recommends that if the utility opts for a treatment which converts rather than removes total sulfides, it should provide an analysis to the Commission within 60 days of the issuance of this Order on elemental sulfur filtration options as described below.

Report Parameters. The analysis of the options for elemental sulfur filtration should address all options that have been tested or implemented for water treatment systems for the control of hydrogen sulfide. For each filtration method or approach, at a minimum, the following information should be provided:

1. A detailed description of the method;
2. A description of any additional equipment necessary to implement the method;
3. An estimate of the cost of the implementation of the method, including equipment and any periodic maintenance necessary to ensure proper performance of the method;
4. The name of the entities that have tested or implemented the method and a brief description of the utility (size, private or public, location and any other facts which would have a bearing on the use of the method);
5. The nature of the problem filtration was employed to address;
6. The results achieved by the methods and whether the entity implemented the process on a full or partial basis for daily operations; and
7. If the entity tested but chose not to deploy the method as a part of its treatment process, explain the rationale for rejecting its use.

Staff is aware that Docket No. 050018-WU, In re: Initiation of deletion proceedings against Aloha Utilities, Inc., for failure to provide sufficient water service consistent with the reasonable and proper operation of the utility system in the public interest in violation of Section 367.111(2), Florida Statutes, has been opened and that there is some question whether some of the subdivisions will remain in Aloha's territory. Because there is little likelihood the deletion proceeding will be resolved in less than a year, when the possibility of appellate proceedings are considered, it appears that Aloha's current customers will remain Aloha's customers for well over a year, even if the Commission decides to delete the territory. Moreover, Primary Staff notes that Aloha's own expert admits improvements are necessary to Wells 8 and 9. Witness Levine states that the goal of the testing is to ensure that the water remains stable under different scenarios. (TR 233-4) It is also clear from Witness Levine's testimony and previous research work (Ex. 7, VAK-7) that she is familiar with the impact of elemental sulfur and potential remedies for addressing the issue. Therefore it should not be a significant additional burden for her to apply her previous findings in refining the methodology that will be employed by Aloha.

In conclusion, consistent with past Commission decisions, the Commission should not order a specific treatment methodology. Primary Staff recommends that the hydrogen peroxide treatment or other upgrade proposed by Aloha should be given a chance to work. However, if the utility opts for a treatment which converts rather than removes total sulfides, it should provide an analysis to the Commission within 60 days of the issuance of this Order on elemental sulfur filtration options as described above.

ALTERNATE STAFF ANALYSIS: Alternate Staff agrees with Primary Staff that if Aloha chooses to use an oxidizing treatment process, it should be given a chance to work. However, in the event it does not, Alternate Staff recommends that by November 1, 2006, Aloha should be required to have completed the engineering design and permitting for a process to remove the hydrogen sulfide at Wells 8 and 9 so that construction can begin expeditiously, if needed. If the oxidation method chosen by Aloha does not reduce the level of verifiable smelly or black water occurrence to an uncommon occurrence by November 1, 2006, Aloha should be required to have a hydrogen sulfide removal process for Wells 8 and 9 placed in service by November 1, 2007.

Alternate staff recommends no numerical definition of "uncommon," but that the term should be defined as it is in Webster's Dictionary as "not ordinarily encountered, or unusual." By "verifiable" Alternate Staff means that all or a random sample of smelly or black water complaints should be verified in the customers' home or business location by PSC staff. Any reported occurrences should be verified by Commission staff as to smell or discoloration only, with no attempt to identify the cause or make any chemical analysis. Although details remain to be worked out, Alternate Staff envisions a mail out to Aloha's customers asking if they are experiencing smelly or black water. From those customers who respond affirmatively, randomly selected customers would be asked if PSC staff may come to their home or business location to document whether the water smells and to photograph the black water. The verification would be done during the month of November 2006. If an uncommon number of smelly or black water occurrences are verified, a PAA recommendation that the PSC order Aloha to begin construction of a removal process would be brought to the Commission.

The recommendation to commence construction if and when staff field inspections verify that smelly or black water remains a common occurrence, means engineering design and permitting would have to be done concurrent with the attempt to optimize the hydrogen peroxide process. Unfortunately, the additional cost of design and permitting may prove to have been unnecessary if the hydrogen peroxide process results in smelly or black water occurrences being uncommon. The alternative to this concurrent approach is to wait until it has been determined whether the number of verifiable smelly or black water occurrences is reduced to an uncommon level. The downside to deferring engineering design and permitting is further delay in correcting the problem.

Alternate Staff is aware that any removal process Aloha selects will likely be costly. For this reason, Alternate Staff is not recommending hydrogen sulfide removal at all of Aloha's wells. A 2002 study by Aloha's consultant contains an estimate of some $15 million to remove, not oxidize, hydrogen sulfide at all of Aloha's eight active wells. (TR 323) However, Wells 8 and 9 appear to be the primary source of the hydrogen sulfide problem. (TR 328-330) The 2002 study also shows about a $4 million cost to remove hydrogen sulfide at Wells 8 and 9. (TR 323) This translates to a rate increase of well over 100 percent. (TR 325) Field construction costs have increased since 2002 and today's removal costs are likely to be higher. In addition, these numbers do not include normal operations and maintenance costs. Because of these high costs, Alternate Staff believes hydrogen peroxide may be a less costly solution than removal and should be given a chance to prove itself.

Alternate Staff arrives at the November 1, 2006 date to begin construction of a hydrogen sulfide removal process as follows: starting with the issuance of a Second Final Order by June 20, 2005, four months for Witness Dr. Levine to complete her tests, and twelve months to optimize the many variables. Aloha is to begin construction of the hydrogen sulfide removal process as soon as it appears, or the Commission determines, that the number of verifiable smelly or black water occurrences will not be sufficiently reduced by November 1, 2006. Any construction and testing of the removal process at Wells 8 and 9 should be completed and placed in service by November 1, 2007.

Aloha should also be required to file detailed monthly reports on the use of hydrogen peroxide, the number of smelly or black water complaints, and any verifiable occurrences, and the engineering design, permitting, and any construction of a hydrogen sulfide removal process as shown below:

1. Use of Hydrogen Peroxide

   a. Designate which well(s) are using the hydrogen peroxide process;
   b. The results of any measurements of the chemical compounds in the water entering the distribution system;
   c. An explanation of the conclusions reached, however tentative, resulting from hydrogen peroxide experiments or optimization activities;
   d. A monthly timeline chart showing the major events planned for each coming month through November 1, 2006 that are expected to result in smelly or black water being an uncommon occurrence;
   e. The location and date of any water quality measurements relating to sulfur or sulfur compounds taken at or near customer meters or at the customer's point-of-use; and,
   f. A statement by Aloha as to whether it is on schedule to reduce smelly or black water to an uncommon occurrence by November 1, 2006.

2. Smelly or Black Water Occurrences

   a. The name and address of any customer complaining of smelly or black water; and,
   b. The results of any on-site verification of the customer's complaint by Aloha that the water is smelly or black, whether the complaint was verified, or whether an on-site attempt was made to verify the complaint.

3. Wells 8 and 9 Hydrogen Sulfide Removal Process

   a. A description and explanation of the hydrogen sulfide removal process Aloha plans to adopt if and when it becomes apparent that a hydrogen peroxide process will not likely reduce the smelly or black water occurrences to an uncommon level; and,

b. A monthly timeline showing the monthly status of the engineering design, permitting, construction, and testing, including projected monthly events, for a hydrogen sulfide removal process for Wells 8 and 9 to be completed by November 1, 2007.

While the Primary Recommendation focuses on a goal for total sulfides in the finished water and an analysis of elemental sulfur filtration options within 60 days from the final order in this case, the Alternate Recommendation focuses on reducing the number of verifiable smelly or black water occurrences and, if Aloha fails to do so by November 1, 2006, requires Aloha to remove, not oxidize, hydrogen sulfide at Wells 8 and 9 by November 1, 2007. The Alternate Recommendation is silent on water quality testing and sulfide level goals because the reconversion of sulfur and sulfate remaining in Aloha's finished water into sulfides may not occur until the water is in the customers' pipes, causing the rotten egg smell or reaction with the customers' copper pipes to form copper sulfide (black water). The primary and alternate recommendations are in agreement that hydrogen peroxide should be given a chance to solve the water quality problems.

ISSUE 3: Should compliance with such requirements be determined based upon samples taken at least once a month at a minimum of two sites at domestic meters most distant from each of the multiple treatment facilities with such sites rotated to provide the greatest likelihood of detecting any departure from the maximum levels permitted?

RECOMMENDATION: No. As recommended in Issue 2, Aloha should test the finished water for compliance with the goal as it first enters the distribution system after it has been treated at the plant sites, and at field (bacteriological) sites which are distributed throughout the utility's service area. Aloha should also test at the point of interconnection with Pasco County for benchmarking purposes.

Monthly testing should be required for all plant sites and field sites as described in Issue 1, for three months, beginning November 2005. Quarterly testing should then be required for the plant and field sites, beginning February 2006, unless a plant or field site test exceeds the goal. If a plant or field site test exceeds the goal, it should be retested monthly until the site achieves the goal for three consecutive months. When Aloha begins purchasing water from Pasco County, the interconnection site should be tested monthly. All field tests should be performed by a commercial laboratory during the first five business days of each testing period. All field tests for total sulfides should be conducted prior to any flushing that is to be conducted for that day.

All of the plant sites should be tested during each testing period. The field test sites should be divided into three groups of ten, and one group of ten sites should be tested during each testing period. Any retesting of a field site, resulting from the site exceeding the goal, will not count in the requirement to test ten field sites unless it is in its normal rotation. At least six of the ten field site tests should be taken south of the intersection of Mitchell Ranch Road and State Road 54. No field site should be used more than twice in any three consecutive testing periods (unless it is a retest for a prior failure).

By October 1, 2005, Aloha should be required to provide a list identifying the field sites to be included in each of the three groups of 10 field sites and a map identifying the field sites by test group. By the last business day of November and December 2005, January and February 2006, and each subsequent quarter (May, August, November, etc.), Aloha should file a report on the results of all tests performed during that testing period, including retests. The report should include the dates, specific location of each test site, and total sulfide levels found for each test site. For all quarterly reports beginning May 2006, Aloha should also provide the same information for any retest sites that may have occurred in the intervening two months since the last quarterly report. In addition, if a plant or field site test exceeded the goal, the report should include an analysis of the possible causes for exceeding the goal at each site, and any remedial action taken or proposed to be taken by Aloha to reduce the level of total sulfides at that site to the level prescribed by the goal. All reports should be filed with the Commission's Division of Commission Clerk and Administrative Services in this Docket. (Jaeger, Daniel)

POSITION OF THE PARTIES

ALOHA: Compliance with the goal of 0.1 mg/L of total sulfides should be determined utilizing standard methodologies for such detection accepted within the profession and the industry. Such

samples should be taken annually at the point of connection of Aloha's treatment systems into the transmission and distribution system of the Utility.

HAWCROFT/WOOD: Yes. The reason for imposing stringent standards results from the inability of the processing method and its technical implementation as practiced by Aloha to produce stable water in the distribution system and the domestic plumbing. This logic also applies to the new method contemplated by Aloha for future use.

OPC: Yes, compliance with such requirements should be determined based upon samples taken at least once a month at a minimum of two sites at domestic meters most distant from each of the multiple treatment facilities. Such sites should be rotated to provide the greatest likelihood of detecting any departure from the maximum levels permitted.

STAFF ANALYSIS: In Issue 1, Staff recommended that Aloha should be required to attain the goal for total sulfides in the finished water by testing Aloha's finished water at the utility's plant sites and at the field (bacteriological test) sites. Also, when Aloha begins purchasing water from Pasco County, the goal for the field sites would be set by testing the County water at the interconnection point and would be the higher of either the County total sulfide level or the 0.1 mg/L level. This issue addresses (1) the frequency of the testing, (2) the number of tests that should be used to determine compliance, and (3) the reporting requirements.

I. Summary of Parties' arguments

A. Aloha's Arguments

Aloha argues that testing the water at the "domestic meters most distant from each of the multiple treatment facilities and at multiple and ever changing locations" is nonsensical, provides useless information, and is "not analogous to the Tampa Bay Water Authority's standard and method of measurement." Aloha argues that such a test would "have absolutely no relationship to the treatment facilities upon which the location of those tests are based," tell you nothing, be useless, provide much less benefit to the customers, and be unprecedented in the industry. (TR 192, 235-236, and 288-289). Aloha argues that both its witnesses Levine and Porter testified that the purpose of the test "was to provide feedback and process control to the treatment undertaken by the Utility." (TR 235-236, 288) (Aloha's Post Hearing Memorandum, p. 18)

Further, Aloha argues that field tests, such as those conducted at domestic meters, would be highly impractical and would lead to unacceptably low accuracy and precision. Witness Porter explained how the water from Aloha's wells is intermixed and that there is no direct correlation between what a particular water plant is doing and the water quality at a customer's home. (TR 314-60) He noted that if a water sample were tested in the distribution system, it may be two or three days old, and if it failed to meet the standard, the only conclusion is that a problem exists. (TR 316-7) It does not show where the problem is. (TR 317-318) To further complicate the issue, the water in the distribution system will already have been disinfected using chloramines, and the water cannot be retreated for sulfides. (TR 321-322) He suggests that tests, if performed anywhere other than the plant sites, should be undertaken by a commercial laboratory. (TR 288)

Aloha argues that testing as proposed by Witness Kurien "would incorporate tests of water from various sources, including water purchased from Pasco County, over which Aloha has no control." (TR 235-236, and 288-289) Aloha alleges that "there are no tests required of any utility . . . that analyzes total sulfides at the individual retail customer meter." (TR 192) Utility witness Porter believes that water samples collected for testing should be gathered at the plant sites where sampling and test procedures can be closely controlled. He asserts that the best place to perform the test is at the point where the water enters the distribution system. (TR 286-7, 289, 296) Aloha notes that TBWA is a wholesale provider of water who provides large quantities to its member governments and does not provide water to any individual customers. (TR 235) Aloha also states that its proposed method of testing would be more equivalent to the TBWA standard (TR 192, 289), and that Witness Kurien's contention that testing at the end of the system would be more equivalent is without merit. (Aloha Post Hearing Memorandum, p. 18)

In conclusion, Aloha argues that the "training and expertise of over 30 years each in water treatment analysis, engineering, testing, etc." of its two experts "is clearly far superior to the extremely limited amount of knowledge and experience of Witness Kurien in these areas." (Aloha Post Hearing Memorandum, p. 14) Based upon all the above, Aloha argues that "the clear and great weight of evidence demonstrates that Witness Kurien's proposal for the location and frequency of testing for compliance is inappropriate, unnecessary and unsupported by competent or substantial evidence," and so the Commission "must reject Witness Kurien's proposal to impose those unprecedented, unworkable and useless testing proposals." (Aloha Post Hearing Memorandum, p. 20)

B. Customers' Arguments

Aloha's water comes from eight plant sites, and, in the future, Aloha may purchase additional finished water from the County with no guarantee that the County's water will meet the goal of 0.1 mg/L of sulfide in the finished water. (TR 177) The Customers are requesting that there be two tests for each well (16 total tests) at the outlet side of the domestic meter most distant from each well, and that these tests be taken monthly and rotated. (TR 278) However, the Customers recognize the need for flexibility, and state that they are willing to consider adjustments as long as they are "consulted before any change is made." (Customers Post Hearing Statement, p. 9)

The Customers further note that the frequency and number of tests "is a function of the method of processing used, the excellence of process control and the efficacy of system management which in turn includes adequacy of facilities and the maintenance of hygiene in the infrastructure that distributes processed water." Although the Customers state that the decisions regarding these tests would normally "be the province of the utility," the Customers note that the "history of Aloha's unwillingness to address these responsibilities (VAK-19 [Exhibit 23]) so that delivered water remains stable in domestic plumbing will always remain a red flag for its customers . . . ." Also, the Customers argue that the DEP and the Commission "are remote and have not been effective in their supervision of the utility's day-to-day performance in relation to water quality during the last ten years." (Customers Post Hearing Statement, p. 10)

If there is "consistent compliance certification at delivery points and reduction in customer complaints," the Customers state that it would "be appropriate to reduce the number of sites and frequency of tests for compliance." The Customers argue that "[t]he subjective assessments of customers of Aloha are essential for this process to become effective, because discoloration of water and rotten egg smell are more sensitive than even the standards that are being recommended at this time." The Customers further argue that "an adequate minimum of objective compliance measurements at the point of delivery will prevent subjective complaints of customers from holding the utility captive to non-provable claims of poor quality," and that disputes could be referred to the FDEP or the Commission. (Customers Post Hearing Statement, p. 11)

C. OPC's Arguments

OPC agrees with the position of the Customers as to the frequency, number, and location of the sampling sites. Citing Exhibit 23, VAK-26 and 27, OPC notes that the TBWA Agreement calls for sampling to be done "at the Points of Connection," and that the maximum average would be calculated "using a running four quarterly sample average." OPC further states that Aloha's allegation that "annual sampling at the treatment facility" is "the norm at the TBWA" is "patently incorrect." (TR 355). Also, OPC notes that Aloha's witness Levine essentially agreed with Dr. Kurien stating that TBWA conducts its measurement "a few times a year" or quarterly. (TR 209-211) Because of the demonstrated problems with Aloha's water, OPC argues that the testing should be more frequent than TBWA, and should only be reduced to four times a year when Aloha can demonstrate that its delivered water is comparable to the water provided by TBWA. (OPC Post Hearing Statement, p. 17) (TR 119)

II. Staff Discussion

In Issue 1, Staff describes in detail how the recommended compliance test sites should be determined. The following discussion details how and when the tests should be performed, and the requirements on the utility if any site fails to meet the specified goal.

Testing Frequency. Staff agrees with Witness Levine that the desired frequency of testing depends upon the purpose or goal of the test. (TR 220-221) Staff recommends that the first round of tests for determining attainment of the goal should be accomplished during the first five business days of November 2005.

As to how frequently the tests should be accomplished, Witness Kurien asserts that TBWA samples its water at least four times annually to assess compliance with its standard and suggests that, if Aloha intends to follow the example set by TBWA, it should test its water at least at this same frequency. (TR 157-158) Witness Porter maintains that the TBWA guidelines anticipated annual compliance reporting, even if multiple samples are taken more frequently. (TR 293)

Since this is both a new treatment process that has never been used and a new testing procedure, Staff believes the record supports more frequent testing, at least initially. (TR 222) Therefore, Staff recommends that the testing periods should be monthly for all plant sites and

field sites, for the first three months (November and December 2005, and January 2006). Beginning in February 2006, Staff recommends that quarterly testing periods should be allowed for the plant and field sites, unless a plant or field site test exceeds the goal. If a plant or field site test exceeds the goal, it should be retested monthly until the site achieves the goal for three consecutive months. When Aloha begins purchasing water from the County, the interconnection site should be tested monthly so that the test results can be used to establish the goal for the field test sites if the level of total sulfides in the County water exceeds 0.1 mg/L. In addition, as suggested by utility witness Porter, all field tests should be performed by a commercial laboratory during the first five business days of each testing period. (TR 288)

Staff notes that flushing can temporarily increase the amount of chlorine residual in the water and reduce the hydrogen sulfide level, and believes that Aloha should proceed with its normal flushing program. (Ex. 23, VAK-19) However, a temporary burst of chlorine could temporarily affect any test for sulfide, and any test taken immediately after flushing might not be indicative of the actual sulfide level which may be present under normal circumstances. Aloha's flushing reports show that some sites are flushed every week day. (Ex. 23, VAK-19) Therefore, staff recommends that all tests for total sulfides should be conducted prior to any flushing that is to be conducted for that day. (Ex. 23, VAK 19)

Number of Tests. Staff recommends that all of the plant sites, as previously defined, should be tested during each testing period (monthly or quarterly). Aloha estimated that each hydrogen sulfide test would cost approximately $107, plus possibly some cost for setup. (TR 220) However, there was nothing in the record about the costs for testing for total sulfides. If Aloha tested all thirty field (bacteriological) sites in each testing period, the cost for testing for hydrogen sulfide alone would be over $3,210. There would likely be additional costs for testing for the other sulfides. Staff believes that it is not necessary to test all 30 field sites in each testing period as described above. Staff believes that testing ten field sites spread over the Seven Springs System in each testing period would be enough for Aloha and the Commission to get an accurate picture of whether the sulfur or sulfate was converting back to sulfide in Aloha's distribution system.

Therefore, Staff recommends that the field test sites be divided into three groups of ten and one group of ten sites should be tested during each testing period (monthly or quarterly). The first group of ten sites should be tested in November 2005; the second group of ten sites should be tested in December 2005; and the third group of ten sites should be tested in January 2006. Subsequently, the first group of ten field sites tested in November 2005, would be tested every third quarter, beginning in February 2006. The second group of ten sites, which were tested in December 2005, would be tested every third quarter beginning in May 2006. The third group of ten sites which were tested in January 2006, would be tested every third quarter beginning in August 2006. In determining the ten sites for each testing period, the sites should be chosen so as to spread the tests over the Seven Springs Service Territory as evenly as possible. Any retesting of a field site, resulting from the site exceeding the goal, should not count in the requirement to test ten field sites, unless it is in its normal rotation.

Staff believes that the major problems with black water and rotten-egg smell are concentrated in the southern half of Aloha's Seven Springs territory. (TR 328-9) Looking at the

map of Aloha's service territory (Exhibit 19), staff estimates that the southern half of Aloha's Seven Springs territory begins south of the intersection of Mitchell Ranch Road and State Road 54. Therefore, Staff recommends that, in each testing period, at least six of the ten field site tests should be taken south of the intersection of Mitchell Ranch Road and State Road 54. In the event there are not at least 18 field sites in the southern half of Seven Springs, Staff recommends that Aloha be allowed to use a southern test site more than once or create a new site, but, in any case, no field site should be used more than twice in any three consecutive testing periods (unless it is a retest for a prior failure).

Based on this criterion, all of the plant sites, ten of the field sites, and the interconnection with Pasco County will all be tested during each regular testing period (monthly or quarterly). In addition to those test sites, any plant or field sites which exceeded the goal will require retesting. As a result, when Aloha goes to quarterly testing, there may be retests in the intervening months for sites that exceed the goal in the prior month(s). Staff has prepared an example of how the testing procedure would be implemented as Attachment A.

Reporting Requirements. By October 1, 2005, Aloha should be required to provide a list identifying the field sites to be included in each of the three groups of 10 field sites and a map identifying the field sites by test group.

By the last working day of November and December 2005, January and February 2006, and each subsequent quarter (May, August, November, etc.), Aloha should file a report on the results of the tests. The report should include the dates, specific location of each test site, and total sulfide levels found for each test site. For all quarterly reports beginning May 2006, Aloha should provide, in addition, the same information for any retest sites that may have occurred in the intervening two months since the last quarterly report. In addition, if a plant or field site test exceeds the goal, the report should include an analysis of the possible causes for exceeding the goal at each site, and any remedial action taken or proposed to be taken by Aloha to reduce the level of total sulfides at that site to the level prescribed by the goal.

All reports should be filed with the Commission's Division of Commission Clerk and Administrative Services in this Docket so Commission Staff can monitor compliance with the established standard. If staff believes the results should be brought to the Commission's attention, they may do so. Otherwise, the reports will remain on file. While there is no direct testimony in the record, staff believes it is well within the Commission's discretion to require follow-up reporting to ensure that the utility is continuing to meet the specified goal. Section 367.121(1)(c), F.S., states that the Commission may require "such regular or emergency reports from a utility . . . as the commission deems necessary . . . ."

Summary. Based on all the above, Staff summarizes its recommendation as follows:

Testing Frequency:

1. Monthly testing should be required for all plant sites and field sites, for the first three months beginning November 2005.

2. Quarterly testing should then be required for the plant and field sites, beginning February 2006, unless a plant or field site test exceeds the goal.
3. If a plant or field site test exceeds the goal, it should be retested monthly until the site achieves the goal for three consecutive months.
4. When Aloha begins purchasing water from the County, the interconnection site should be tested monthly.
5. All field tests should be performed by a commercial laboratory during the first five business days of each testing period.
6. All tests for total sulfides should be conducted prior to any flushing that is to be conducted for that day.

Number of Tests:

1. All of the plant sites should be tested during each testing period.
2. The field (bacteriological test) sites should be divided into three groups of ten and one group of ten sites should be tested during each testing period. Any retesting of a field site, resulting from the site exceeding the goal, will not count in the requirement to test ten field sites unless it is in its normal rotation.
3. At least six of the ten field site tests should be taken south of the intersection of Mitchell Ranch Road and State Road 54. No field site should be used more than twice in any three consecutive testing periods (unless it is a retest for a prior failure).

Reporting Requirements:

1. By October 1, 2005, Aloha should be required to provide a list identifying the field sites to be included in each of the three groups of 10 field sites and a map identifying the field sites by test group.
2. By the last business day of November and December 2005, January and February 2006, and each subsequent quarter (May, August, November, etc.), Aloha should file a report on the results of all tests performed during that testing period, including retests. The report should include the dates, specific location of each test site, and total sulfide levels found for each test site. For all quarterly reports beginning May 2006, Aloha should also provide the same information for any retest sites that may have occurred in the intervening two months since the last quarterly report. In addition, if a plant or field site test exceeded the goal, the report should include an analysis of the possible causes for each site's exceeding the goal and any remedial action taken or proposed to be taken by Aloha to reduce the level of total sulfides at that site to the level prescribed by the goal.
3. All reports should be filed with the Commission's Division of Commission Clerk and Administrative Services in this Docket.

ISSUE 4: Does the Commission have the authority to regulate, impose, or establish drinking water standards, maximum contaminant levels, action levels, or treatment technique requirements?

STAFF RECOMMENDATION: The Commission has the authority to approve the actions recommended by staff in Issues 1-3. While there may be some question about whether the Commission can or should establish drinking water standards or maximum contaminant levels, staff believes that there is no question but that the Commission has jurisdiction over the quality of service provided by a utility and can require the utility to take specific actions to improve the quality of service. See, Sections 367.011, 367.081(2), 367.111(2), and 367.121(1)(a), (c) and (d), Florida Statutes. Also, Staff notes that the Commission has already ordered the utility to take specific actions to improve the quality of service when it issued the Final Order in this case, and that Final Order was per curiam affirmed. (Jaeger)

POSITION OF THE PARTIES

ALOHA: No. The Commission has no such authority. Establishment of these types of standards and levels of treatment requirements is exclusively within the jurisdiction of DEP, the EPA and other environmental regulators.

HAWCROFT/WOOD: Same position as Office of Public Counsel (OPC).

OPC: Yes.

STAFF ANALYSIS:

I. Arguments of the Parties

A. Aloha's Arguments

Aloha argues that "the 2002 per curiam appellate decision of the First District Court of Appeal is not a [sic] 'affirmance' of that portion of the PSC's Order [Final Order] which required that 98% of the hydrogen sulfide in Aloha's raw water be removed." Citing Department of Legal Affairs v. District Court of Appeal, 434 So. 2d 310 (Fla. 5th DCA 1983), Aloha states that the Florida Supreme Court recognized "that the District Courts of Appeal, which have addressed the issue of the effect of a per curiam affirmance, have been firm in holding that such has no precedential value and have consistently held that a per curiam decision without opinion cannot be cited as precedent." Because "[s]uch a decision does not establish any point of law, and there is no presumption that the affirmance was on the merits . . . Department of Legal Affairs, at 311," Aloha argues that "no appellate court has ever ruled that the PSC has the lawful authority to impose water quality standards."

Moreover, Aloha notes that pursuant to Section 367.121(1)(a), F.S., the Commission shall have the power:

> To prescribe fair and reasonable rates and charges, classifications, standards of quality and measurements, and to prescribe service rules to be observed by each utility, ***except to the extent such authority is expressly given to another agency.***

(emphasis supplied by the utility)

In the past, Aloha notes that the Commission "has consistently, and properly, deferred to the appropriate environmental protection agencies on water quality issues," and cited In re: Application of South Brevard Utility, Inc., 90 F.P.S.C. 4:438, 442 (1990), where despite many customers complaints about the water having a color and a strange odor, the Commission "found that 'there is no requirement for opacity or odor control established by DER . . . .'" Aloha then argues, as economic regulators, the Commission "may not impose an environmental standard that is greater than the standard set by the agency charged with enforcing various environmental standards." Aloha also cites In re: Application of RHV Utility, Inc., 95 F.P.S.C. 8: 115, 117 (1995), as a case where the Commission explicitly deferred to the environmental protection authority and held "[a]s long as the utility appears to be cooperating with the agency of primacy in this area, our involvement is unnecessary."

Aloha notes that on numerous occasions the Commission "has dealt with the subject of hydrogen sulfide in the water of the utilities it regulates and has consistently observed that hydrogen sulfide is not harmful, that problems associated with it are typically localized in the customer's plumbing, and that the water in each of those cases nonetheless satisfied safe drinking water requirements." Aloha then cited eleven cases in support of its position, and stated that in each case, the Commission chose not "to extend its jurisdiction to the implementation of water quality standards or water treatment protocols."

Aloha argues that the Commission has no lawful authority to stray into those areas of regulation whose implementation has expressly been reserved by state and federal law for environmental agencies . . . ," and that the Commission "has 'only those powers granted by statute expressly or by necessary implication.' Deltona Corp. v. Mayo, 342 So. 2d 510 (Fla. 1977)(citing Cape Coral v. GAC Utilities, Inc., 281 So. 2d 493 (Fla. 1973))" In Deltona, Aloha notes that the Commission found that whether Deltona had engaged in unfair business practice or committed fraud was not of statutory concern to the Commission. In Cape Coral, Aloha states that the Florida Supreme Court noted that:

1. All administrative bodies created by the Legislature are not constitutional bodies, but, rather, simply mere creatures of statutes;
2. The PSC's powers, duties and authority are those and only those that are conferred expressly or impliedly by statute of the State;
3. Any reasonable doubt as to the lawful existence of a particular power that is being exercised by the PSC must be resolved against the exercise thereof; and
4. The Legislature has never conferred upon the PSC a general authority to regulate public utilities.

Aloha argues that if the Commission "has jurisdiction to force a water treatment standard upon Aloha which exceeds any existing state or federal law . . . applied to any (much less all) other utilities, that authority would not logically be limited to the element of hydrogen sulfide," but also would extend to "odor, taste, clarity, or fitness for human consumption." And yet, Aloha notes "that neither the PSC's enabling statutes, nor its administrative rules even attempt to either establish any such standards or to provide when or how the implementation of any such standards would or could be appropriate." Aloha states that if the Commission were to issue an Order requiring the higher standards, this would usurp the jurisdiction of those "state and federal agencies that do have jurisdiction over the water quality of Florida's regulated utilities," which would be "neither lawful nor appropriate."

In conclusion, Aloha argues that the Commission "should recognize that it does not have the expertise to establish and enforce water quality standards." Further, Aloha states that the Commission in its Proposed Agency Action Order No. PSC-04-0712-PAA-WS (PAA Order) recognized that it had made a mistake when it required the 98% removal standard from all wells, and that the Commission in that same PAA Order declined "to prescribe the treatment methodology that Aloha should use in order to comply with the requisite treatment standard." Aloha concludes that the "PSC should not, again, attempt to extend its jurisdiction into areas beyond its expertise, as it did in its 2002 order to Aloha."

B. OPC/Customers' Arguments

In its Supplement to Post-Hearing Statements of Issues and Positions, allowed by the Prehearing Officer over Aloha's objections and Motion to Strike, OPC set out its argument as to why the Commission did have the authority to regulate, impose, or establish drinking water standards, maximum contaminant levels, action levels, or treatment technique requirements. OPC first cites Section 367.011(3), F.S., which states:

> The regulation of utilities is declared to be in the public interest, and this law is an exercise of the police power of the state for the protection of the public health, safety and welfare. The provisions of this chapter shall be liberally construed for the accomplishment of this purpose.

OPC goes on to note that "water quality is such an important issue that when setting rates," pursuant to Subparagraph 367.081(2)(a)1., F.S.:

> . . . In every such proceeding, the commission shall consider the value and quality of the service . . . .

OPC then cites subparagraph 367.121(1)(a), F.S., the same subparagraph cited by Aloha, and notes that the Commission has the power to prescribe "standards of quality and measurements" except to the extent that such power is limited or taken away by being expressly given to another state agency. OPC acknowledges that pursuant to Section 403.851, F.S., the responsibility for the safety of drinking water is shared between the Department of Environmental Protection and Department of Health.

However, OPC argues that the quality of water service is a much broader concept than safety, and that "water may be safe but still of inferior quality." OPC notes that in the case of City of North Miami Beach v. Metropolitan Dade County, 317 So. 2d 110 (Fla. 3d DCA 1975), cert. denied, 334 So. 2d 604 (Fla. 1976), "the Court found that the public health laws did not give the Department of Health and Rehabilitative Services [HRS] exclusive jurisdiction over water quality and services in Florida." The HRS attorney had argued that HRS and its agents had "final responsibility and general supervision and control over all systems of water supply insofar as their adequacy, sanitary and physical condition affect public health." Without addressing that argument, the court stated:

> It is sufficient for a determination of this case to point out that the Division's position does not conflict with the position taken here by Metropolitan Dade County. It is clear that the County does not seek to over-ride a validly-exercised state authority. It seeks rather to assert an authority of its own in order 'to regulate on a county-wide basis according to a uniform plan those municipal functions that are susceptible to, and could be most effectively carried on under, a regulatory plan applicable to the entire county.

OPC argues that, like the County in the above-noted case, "the Commission has its own, legislatively provided power to prescribe standards of quality and measurements." OPC further notes that staff DEP witness Sowerby "expressed no concern about the Commission applying additional standards to Aloha," and his concern was only that the utility would conduct tests "at locations and with frequency at least as great as those required" by DEP.

OPC concludes that the "Commission has explicit authority to prescribe standards of quality and measurements, and nothing proposed in this case conflicts with rules of other state agencies." Finally, OPC argues that quality of service is a "core concern found in several sections of Chapter 367, Florida Statutes, and the legislature has given the Commission jurisdiction over that aspect of the service provided by water and wastewater companies," and that the "Commission has ample authority to require Aloha to meet the standards proposed in this case."

II. Staff's Analysis

Aloha argues that "the 2002 *per curiam* appellate decision is not an 'affirmance' of that portion of the PSC's Order which required that 98% of the hydrogen sulfide in Aloha's raw water be removed." Staff believes that Aloha is confusing "precedential value," i.e., a per curiam affirmance cannot be used for precedential purposes, with what the appellate court did. The appellate court affirmed the entire Final Order, which included a requirement that Aloha, because of unsatisfactory quality of service, remove 98% of the hydrogen sulfide in Aloha's raw water.

The legality of the 98% removal requirement was squarely before the 1st DCA. Aloha's Initial Amended Brief filed at the 1st DCA raised the issue:

> 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 COMMISSION'S LAWFUL JURISDICTION.

When making its arguments to the Court, Aloha relied on the same cases and orders in its appellate brief as it now does in its Post-Hearing Memorandum. While the per curiam affirmance may not have any precedential value that "the PSC has the lawful authority to impose water quality standards," staff believes that Aloha's arguments have previously been rejected by the court.

Staff disagrees with Aloha's argument that the Commission lacks the authority to impose a water quality standard, and agrees with the legal argument of OPC. Pursuant to Sections 367.011(2) and (3), 367.081(2)(a)1., 367.111(2), and 367.121(1)(a), (c) and (d), F.S., the Commission has jurisdiction over the quality of service provided by Aloha, and pursuant to Section 367.011(3), F.S., the provisions concerning quality of service should be liberally construed. Section 367.111(2), F.S., provides in pertinent part:

> Each utility shall provide to each person reasonably entitled thereto such safe, efficient and sufficient service as is prescribed by Part VI of chapter 403 and parts I and II of Chapter 373, or rules adopted pursuant thereto; but such service shall not be less safe, less efficient, or less sufficient than is consistent with the approved engineering design of the system and the reasonable and proper operation of the utility in the public interest.

The Commission has initiated show cause proceedings against Aloha in Docket No. 050018-WU because of the poor quality of service experienced by Aloha's customers, and one of the statutes the Commission relied on in doing so was Section 367.111(2), F.S. Aloha may or may not be violating any DEP or HRS standards, and yet the Commission has found it proper to initiate the deletion proceeding based in part on this section.

Moreover, Sections 367.121(1)(a), (c) and (d), F.S., provide in pertinent part:

> (1) In the exercise of its jurisdiction, the commission shall have power:
> (a) To prescribe fair and reasonable rates and charges, classifications, standards of quality and measurements, and to prescribe service rules to be observed by each utility, except to the extent such authority is expressly given to another state agency.
>
> * * *
>
> (c) To require such regular or emergency reports from a utility . . .

> (d) To require repairs, improvements, additions, and extensions to any facility, if reasonably necessary to provide any reasonably prescribed quality of service . . . .

The Commission has previously determined that Aloha's quality of service was unsatisfactory and that Aloha should remove 98% of the hydrogen sulfide from its raw water, and that decision was affirmed by the appellate court. It was only after Aloha petitioned the Commission to modify the standard that the Commission issued its PAA Order. The question then became how should the requirement affirmed by the court be modified, not if there should or could be a standard at all. Rule 25-30.433(1), F.A.C., governs the Commission's action in considering quality of service, and that rule requires the Commission to consider: (1) the quality of the utility's product; (2) the operational conditions of the utility's plant and facilities; and (3) the utility's attempt to address customer satisfaction. The utility's attempt to address customer satisfaction is not governed by whether the utility is complying with EPA or DEP standards. In issuing its Final Order, the Commission followed this rule.

Aloha's reliance on the language "except to the extent such authority is expressly given to another state agency," in Section 367.121(1)(a), F.A.C., is misplaced. In City of North Miami Beach, the Third DCA determined that the public health laws did not give HRS exclusive jurisdiction over water quality and services in Florida, and that the County was appropriately seeking to assert authority of its own. Likewise, the Legislature has provided the Commission with authority to review the quality of service provided by water and wastewater utilities and require improvements as it deems necessary.

On page 23 of its Post-Hearing Memorandum, Aloha cites eleven orders in which the Commission dealt with the subject of hydrogen sulfide in the water of other utilities and in which the Commission declined to require those utilities to take any action. A brief synopsis of each order is set out below:

1) In re: Application of Pennbrooke Utilities, Inc., 01 F.P.S.C. 6: 75, 81 (2001) [Order No. PSC-01-1246-PAA-WS, Docket No. 001382-WS]: Only two customers spoke about the quality of service, and only one complained about the "odor and flavor" of the water which was caused by hydrogen sulfide. The utility was treating for hydrogen sulfide by both chlorination and aeration, and the Commission found that the utility's efforts were "by and large" successful in providing satisfactory quality of service.

2) In re: Application of United Water Florida, Inc., 97 F.P.S.C. 5: 641, 648-650 (1997) [Order No. PSC-97-0618-FOF-WS, Docket No. 960451-WS]: Only 27 customers out of 28,500 testified at the hearing, and the Commission noted that the area served by the utility was known to have hydrogen sulfide. The utility was using both chlorination and aeration, but there were still problems with corrosivity and hydrogen sulfide. Therefore, even though the Commission found the quality of service was satisfactory, it directed the utility to address the concerns of the customers in regards to corrosivity and to provide a report and data on the effectiveness of the corrosion control and hydrogen sulfide treatment programs within six months.

3) In re: Application of Heartland Utilities, Inc., 96 F.P.S.C. 11:268, 270-72 (1996)[Order No. PSC-96-1389-FOF-WU, Docket No. 960517-WU]: Only four of 643 customers voiced opinions concerning poor quality of service. An investigation showed that much of the problem could be traced to hydrogen sulfide in the water, and that one plant was using both aeration and chlorine to control the hydrogen sulfide, while the other plant was using only chlorine. At that time, there was no maximum dosage on chlorine and the Commission noted that the utility was maintaining a 0.9 parts per million of chlorine residual "at the remote tap which is a very good level of disinfection." The Commission found that the chemical composition of the water "has not dictated that the utility be required to install additional equipment," and that the costs for installation of any upgrade would be prohibitive. Moreover, the Commission found that the utility was cooperative and attempting to respond to the needs of its customers, and found the quality of service to be satisfactory.

4) In re: Application of JJ's Mobile Homes, Inc. (JJs), 95 F.P.S.C. 10: 480, 485-87 (1995) [Order No. PSC-95-1319-FOF-WU, Dockets Nos. 921237-WS and 940264-WS]: Only 16 customers testified about the quality of service and only some of those addressed the quality of the water. Despite finding that JJs was in compliance with all state standards with regards to the quality of its water and wastewater service, the Commission found it appropriate to require JJs "to address problems relating to the source of the water, particularly odor and green stains." Therefore, the Commission ordered JJs to provide a master plan evaluating the need for and cost of addressing water quality concerns and to address the treatment processes suggested in the Mock, Roos report and any additional measures that can be taken to address the concerns raised by the customers.

5) In re: Application of Lake Josephine Water, 95 F.P.S.C. 8:389, 390-91 (1995) [Order No. PSC-95-1044-FOF-WS, Docket No. 950020-WU]: Out of a customer base of 434, only approximately 15 customers attended the customer meeting. Studies had shown that the water was slightly corrosive and that the problem was due to the raw water containing hydrogen sulfide. The utility was treating for hydrogen sulfide by both chlorination and aeration, but the aeration chamber was slightly undersized. Even though DEP had not mandated that the utility upgrade its aeration capacity, the utility had discussed its plans with the Commission to install a twin Enviroport type aeration/ground storage/hydropneumatic tank. The Commission found that the utility's quality of service was satisfactory.

6) In re: Application of St. George Island Util. Co., Ltd., 94 F.P.S.C. 11: 141, 146-49 (1994) [Order No. PSC-94-1383-FOF-WU, Docket No. 940109-WU]: Sixteen customers testified, and several customers complained about odor, deposits on fixtures, corrosion, or having to replace water heater elements. The utility was in compliance with primary drinking water standards, but there were some deviations on secondary standards to include: excessive levels of copper, excessive turbidity, and Well No. 3 exceeded the maximum contaminant level for color and had a problem with hydrogen sulfide. The utility had entered in to a Partial Final Judgment with DEP concerning removal of hydrogen sulfide. To address these problems, the utility installed a back-up chlorination system and modified the aerator. The utility had also taken steps to increase pressure and decrease outages. The Commission found "that the utility has made strides toward reliable and efficient service," that any remaining deficiencies were being addressed, and the overall quality of service was marginally satisfactory.

7) In re: Application of Ocean City Utilities, Inc., 94 F.P.S.C. 3: 97, 99 (1994) [Order No. PSC-94-0244-FOF-WU, Docket No. 920736-WSU]: Eight people at the customer meeting talked about poor water quality, the low water pressure, and odors coming from the wastewater treatment plant. Under normal conditions, with proper aeration, the utility controlled and reduced the problem with odor from the hydrogen sulfide. However, due to electrical outages or repairs to water mains, there could be a "lapsed time for the aeration process to function properly." The Commission noted that it did not have primary regulatory responsibility over the quality of the water, and sent the information from staff's investigation to the water management district, DEP, and the County Health Department.

8) In re: Application of CGD Corp., 93 F.P.S.C. 1: 70, 71 (1993) [Order No. PSC-93-0011-FOF-WS, Docket No. 920937-WS]: Five customers at the customer meeting had comments about the quality of service, of which three complained about the taste and odor of the water. The odor was apparently due to hydrogen sulfide in the water, which the utility was attempting to control through use of two chlorination points. The Commission found that the quality of service provided by the utility was satisfactory.

9) In re: Application of Springside at Manatee, Ltd., 92 F.P.S.C. 4: 213, 214 (1992) [Order No. PSC-92-0190-FOF-WS, Docket No. 910909-WS]: Three customers at the customer meeting had comments about the quality of service, with one customer complaining about the water having a bad odor. A DEP analysis showed that the sulfate levels exceeded the maximum contaminant levels, but that the color, odor, turbidity, and pH were satisfactory. The Commission noted that sulfates can make the water have an off-taste and cause it to be corrosive, but that the only solution would be reverse osmosis which would be cost prohibitive. The Commission ultimately found that the quality of service provided by the utility was satisfactory.

10) In re: Application of Laniger Enterprises of America, Inc., 91 F.P.S.C. 7: 341, 342 (1991) [Order No. 24817, Docket No. 900945-WS]: Three customers commented on the quality of service, with only one customer commenting about odor, and it was unclear whether the odor was coming from the water or the wastewater treatment plant. Another customer complained about high chlorine levels. The Commission noted that interaction with hydrogen sulfide found in the raw water makes it difficult to maintain constant levels of chlorine, and that the high level of chlorine may have been caused by the failure of the utility's hydropneumatic tank. Upon such failure, regulatory guidelines dictate that the utility purge the lines with disinfectant (chlorine). During a field inspection, none of the above-noted problems were apparent. The utility had moved methodically to correct deficiencies, and was working with DER (now DEP) toward resolution of outstanding deficiencies. The Commission found the quality of service to be satisfactory.

11) In re: Application of Fisherman's Cove of Stuart, Inc., 91 F.P.S.C. 3: 656, 658 (1991) [Order No. 24284, Docket No. 900654-WS]: Six customers at the customer meeting had complaints about quality of service, with their being one complaint on odor and taste, two complaints on discoloration, and two or three complaints on high/low levels of chlorine. The Commission noted that interaction with hydrogen sulfide found in the raw water could make the chlorine level vacillate. The Commission notified DER (now DEP) of the possible problems

with the chlorine levels, and noted that the utility had instituted a more vigorous flushing program pending further investigation. Further analysis indicated the presence of hydrogen sulfide, which the utility was attempting to control with aeration (also chlorination). The Commission found that the utility was cooperative in working toward a resolution of each complaint expressed at the customer meeting, and found the quality of service to be satisfactory.

Having reviewed those orders, staff believes that there are some common themes. Pursuant to Rule 25-30.433(1), F.A.C., the Commission must consider the utility's attempt to address customer satisfaction. In doing so, the Commission reviews the number of complaints, the severity of the complaints, the utility's attempt to respond to its customers' concerns, and the utility's cooperation with regulatory agencies. While the Commission gives great deference to the findings of DEP and the county health departments, the Commission has repeatedly indicated that compliance with all primary, or even secondary standards, does not mean that the quality of service must be found to be satisfactory and that the utility need do nothing further.

As noted in the United Water Florida and JJ's orders cited above, even though the Commission found that the quality of service was satisfactory, the Commission nevertheless required the utilities to take further action to address water problems. Finally, in each of the eleven orders, the Commission either found that the quality of service was satisfactory or made no final pronouncement on the quality of service. In most of the orders, the Commission noted that the utilities were taking measures to address the problem and were trying to respond to the customers concerns and be cooperative. Because of this cooperation and the utilities' efforts to resolve their problems, it was unnecessary for the Commission to intercede or become involved, except as noted in United Water Florida and JJ's. Seven of the utilities were using some form of aeration to reduce the hydrogen sulfide level, and another utility was using two points of chlorination to try to keep the residual free chlorine at appropriate levels. At least seven of the Orders addressed very minimal customer complaints. For Springside at Manatee and Laniger there was only one customer complaint about odor for each utility, and for Laniger that complaint may have been against the wastewater treatment plant. Aloha's reliance on these orders is not persuasive.

Staff believes that Aloha's situation is much worse than even the situations described in the United Water Florida and JJ's, the worst cases noted above. Concerning quality of service, United Water Florida had only 27 customers out of 28,500 testify, and JJ's had only 16 customers testify. In the hearing in this case, with a customer base considerably less than United Water Florida, Aloha had 29 customers testify and complain of black or discolored water, odor/taste problems, low pressure, and or sediment/sludge. See, Final Order, page 8. In those cases, although the quality of service was found to be satisfactory, the Commission required the utilities to take additional action. In this case, the Commission found the customer testimony to be persuasive that the quality of service was unsatisfactory and that additional actions were required. Moreover, a review of the Commission's decisions shows that Aloha's customers have complained about black and smelly water for almost ten years and, as of the date of the hearing, it appears that Aloha has still not fixed the problem.

In its closing paragraph, Aloha argues that the Commission does not have "the expertise to establish and enforce water quality standards," and that it "should not again attempt to extend its jurisdiction into areas beyond its expertise, as it did in its 2002" Final Order. However, staff notes that this current process began upon Aloha's petition for the Commission to modify the 98% removal standard to a more attainable standard. Therefore, the original question was not whether the Commission could require additional actions and set standards, but how should the standard be modified. Aloha is now attempting to go back to the same position it took when it appealed the Final Order.

In conclusion, while staff believes that the Commission should not use the terms drinking water standard or "maximum contaminant level" because of the use and meaning attached to them by DEP and EPA, staff believes that there is no question but that the Commission has jurisdiction over the quality of service provided by a utility and can require the utility to take specific actions to improve the quality of service. See, Sections 367.011, 367.081(2), 367.111(2), 367.121(1)(a), (c) and (d), F.S. Also, Staff notes that the Commission has already ordered the utility to remove 98% of the hydrogen sulfide from its finished water and make improvements to its wells to improve the quality of service when it issued the Final Order in this case, and that Final Order was per curiam affirmed. Therefore, the question should not be whether the Commission can require certain actions, but how should the Final Order be modified, and how to measure when additional actions are required, and what those actions will be.

Chart 1 - Illustration of Testing Described in Issue 3

This chart shows the initial testing of all selected sites in the first three months (November 2005, December 2005, and January 2006). For the sites which meet the goal, the three groups would go to quarterly testing cycle starting in February 2006 beginning with the first group initially tested in November 2005. Group 2 would begin quarterly testing in May 2006 and Group 3 in August 2006. Group 1 sites continuing to meet the goal would not be tested again until November 2006, or the third quarter after it went to quarterly testing. Throughout the period, sites which failed the test would continue to be tested monthly until the required compliance is met.

Test Dates	Plant Sites	Field Sites	Retest Sites	Interconnection Site
11/05	Test 100%	Test 1st 10		Test
12/05	Test 100%	Test 2nd 10	Prior failed sites as needed	Test
1/06	Test 100%	Test 3rd 10	Prior failed sites as needed	Test
2/06	Test 100%	Test 1st 10	Prior failed sites as needed	Test
3/06			Prior failed sites as needed	Test
4/06			Prior failed sites as needed	Test
5/06	Test 100%	Test 2nd 10	Prior failed sites as needed	Test
6/06			Prior failed sites as needed	Test
7/06			Prior failed sites as needed	Test
8/06	Test 100%	Test 3rd 10	Prior failed sites as needed	Test
9/06			Prior failed sites as needed	Test
10/06			Prior failed sites as needed	Test
11/06	Test 100%	Test 1st 10	Prior failed sites as needed	Test
12/06			Prior failed sites as needed	Test
1/07			Prior failed sites as needed	Test
2/07	Test 100%	Test 2nd 10	Prior failed sites as needed	Test
3/07			Prior failed sites as needed	Test
4/07			Prior failed sites as needed	Test
5/07	Test 100%	Test 3rd 10	Prior failed sites as needed	Test

This following two charts show examples of possible combinations of pass/fail options for test sites. All plant sites are tested in each testing cycle while field sites are rotated in groups of 10. If a site fails, it must be retested monthly until it passes three consecutive months, then it goes back into its normal group quarterly rotation. The quarterly testing corresponds to the shaded rows in Chart 1.

Chart 2 - Sample Plant Site Testing Requirements

	11/05	12/05	1/06	2/06	3/06	4/06	5/06	6/06	7/06	8/06	9/06	10/06	11/06	12/06
PS 1	P	P	P	P			P			P			P	
PS 2	P	P	F	F	P	P	P			P			P	
PS 3	P	F	P	P	P		P			P			P	
PS 4	F	F	F	F	P	P	P			F	F	P	P	P
PS 5	F	F	P	P	P		P			P			P	
PS 6	F	P	F	F	F	F	P	P	P	P			P	
PS 7	P	P	P	P			P			P			P	
PS 8	F	F	P	F	P	P	P			F	P	P	P	
Total	8	8	8	8	6	4	8	1	1	8	2	2	8	1

P – Total sulfides did not exceed 0.1 mg/L goal (Pass)
F – Total sulfides exceeded 0.1 mg/L goal (Fail)

Note 1 – There will be less than 8 plant sites, for testing purposes, if multiple wells have a single point of entry into the distribution system.
Note 2 – Test all plant sites monthly from 11/05 - 1/06 and then quarterly beginning 2/06.
Note 3 – If a plant site exceeds the 0.1 mg/L goal (Fail), additional testing required until three consecutive tests do not exceed the 0.1 mg/L goal (Pass)

Chart 3 - Sample Field Site Testing Requirements

	11/05	12/05	1/06	2/06	3/06	4/06	5/06	6/06	7/06	8/06	9/06	10/06	11/06	12/06
FS 1	F	P	P	P									P	
FS 2	F	F	P	P	P								P	
FS 3	F	F	F	P	P	P							P	
FS 4	F	P	F	F	P	P	P						P	
FS 5	P			P									P	
FS 6	P			P									P	
FS 7	P			P									P	
FS 8	P			P									P	
FS 9	P			P									P	
FS 10	P			P									P	
FS 11		F	P	F	P	P	P							
FS 12		F	F	P	P	P	P							
FS 13		F	P	F	F	P	P	P						
FS 14		P					P							
FS 15		P					P							
FS 16		P					P							
FS 17		P					P							
FS 18		P					P							
FS 19		P					P							
FS 20		P					P							
FS 21			F	F	F	P	P	P		F	F	P	P	P
FS 22			F	P	P	P				F	F	P	F	P
FS 23			F	P	F	P	F	P	F	P	P	P		
FS 24			P							P				
FS 25			P							P				
FS 26			P							P				
FS 27			P							P				
FS 28			P							P				
FS 29			P							P				
FS 30			P							P				
Total	10	14	17	16	9	8	13	3	1	10	3	3	12	2

P – Total sulfides did not exceed goal (Pass)
F – Total sulfides exceeded goal (Fail)