

ORIGINAL

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AUG 30 PM 4:18

RECORDS AND REPORTING



JACK SHREVE
PUBLIC COUNSEL

STATE OF FLORIDA
OFFICE OF THE PUBLIC COUNSEL

c/o The Florida Legislature
111 West Madison St.
Room 812
Tallahassee, Florida 32399-1400
850-488-9330

August 30, 1999

Blanca S. Bayo, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Re: Case No. 960545-WS

Dear Ms. Bayo:

Enclosed for filing in the above-referenced docket are original and 15 copies of the Direct Testimony of Ted L. Bidy, P.E./P.L.S. on Behalf of the Citizens of the State of Florida.

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

Sincerely,

Harold McLean
Associate Public Counsel

- AFA
- APP HM:bsr
- CAF _____
- CMU _____
- CTR Enclosures
- EAG _____
- LEG Jaeger
- MAS B + orig
- OPC _____
- PAI _____
- SEC J
- WAW J
- OTH _____

RECEIVED & FILED

FPSC-BUREAU OF RECORDS

DOCUMENT NUMBER-DATE

10346 AUG 30 99

FPSC-RECORDS/REPORTING

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

ORIGINAL

In Re Investigation of Utility)
rates of Aloha Utilities, Inc.)
In Pasco County, Florida.)

DOCKET NO. 960545-WS

FILED: August 30, 1999

DIRECT TESTIMONY

OF

TED L. BIDDY, P.E./P.L.S.

On Behalf of the Citizens of The State of Florida

Docket No. 960545-WS

Jack Shreve
Public Counsel

Office of Public Counsel
c/o The Florida Legislature
111 West Madison Street
Room 812
Tallahassee, FL 32399-1400

(850) 488-9330

Attorney for the Citizens
of the State of Florida

DOCUMENT NUMBER-DATE

10346 AUG 30 89

FPSC-RECORDS/REPORTING

1 DIRECT TESTIMONY OF TED L BIDDY, P.E./P.L.S.
2 ON BEHALF OF THE CITIZENS OF FLORIDA

3
4 BEFORE THE
5 FLORIDA PUBLIC SERVICE COMMISSION
6 DOCKET NO. 960545-WS
7

8 Q. What is your name, and business address?

9 A. My name is Ted L. Bidy. My business is 2308 Clara Kee
10 Boulevard, Tallahassee, Florida 32303.

11 Q. By whom are you employed and what is your position?

12 A. I am self-employed as a professional engineer and land surveyor.

13 Q. What is your educational background and work experience?

14 A. I graduated from the Georgia Institute of Technology with a B.S.
15 degree in Civil Engineering in 1963. I am a registered professional
16 engineer and land surveyor in Florida, Georgia and Mississippi and
17 several other states. I was the vice-president of Baskerville-
18 Donovan, Inc. (BDI) and the regional manager of the Tallahassee
19 Office from April 1, 1991 until February, 1998. I left the
20 employment of BDI on September 30, 1998. Before joining BDI in
21 1991, I had operated my own civil engineering firm for 21 years.
22 My areas of expertise include civil engineering, structural
23 engineering, sanitary engineering, soils and foundation engineering
24 and precise surveying. During my career, I have designed and
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supervised the master planning, design and construction of thousands of residential, commercial and industrial properties. My work has included water and wastewater design; structural design; land surveys; and environmental permitting.

I have served as principal and chief designer for numerous utility projects. Among my major water and wastewater facilities designs have been a 2,000 acre development in Lake County, FL; a 1,200 acre development in Ocean Springs, MS; a 4 mile water distribution system for Talquin Electric Cooperative, Inc. and a 320 lot subdivision in Leon County, FL.

Q. What are your professional affiliation?

A. I am a member of the Florida Engineering Society, National Society of Professional Engineers, Florida Institute of Consulting Engineers, American Consulting Engineers Council, American College of Forensic Examiners and the Florida Society of Professional Land Surveyors.

Q. Have you previously testified before the Florida Public Service Commission (FPSC)?

A. Yes. I have testified before the PSC for Docket Nos. 940109-WU, 950495-WS, 9503870-SU, 951056-SU, 960329-WS and the remand cases Docket Nos. 950387-SU and 971065-SU on various engineering issues and used and useful analyses.

Q. Have you previously testified before a state or federal court as an engineering expert witness?

Yes, I have had numerous court appearances as an expert witness

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for cases involving roadways, utilities, drainage, stormwater, water and wastewater facilities designs.

Q. What is the purpose of your testimony?

A. The purpose is to present testimony in connection with a water quality investigation which I have concluded of the Aloha Utilities Seven Springs Water System specifically in connection with "black water" complaints by the customers of Aloha Utilities..

Q. What documents have you reviewed in preparation for your testimony?

A. I have reviewed the pre-filed direct testimony of Aloha's President Stephen G. Watford and the pre-filed direct testimony of Aloha's's Consulting Engineer David W. Porter, P.E., along with all of their exhibits which included an extensive study by Mr. Porter entitled "Water Facilities Upgrade Study Report." I also reviewed the "Notice of Proposed Agency Action" of the Public Service Commission dated January 7, 1999..

Q. During your review of the "Water Facilities Upgrade Study Report", did you form an opinion as to whether this document adequately addressed the Commission's March 12, 1997 order to Aloha to prepare a report that evaluated the costs and efficiencies of several treatment options for the removal of hydrogen sulfide from its source water?

A. Yes, I formed the opinion that the report did not adequately address the Commission's order in that the report did not attempt to isolate the problem area(s) and then study ways to upgrade the water

1 quality at the problem area(s) but the study included extensive new
2 water treatment, storage, and pumping facilities for all nine existing
3 well sites and even added additional well sites. Indeed, the
4 recommended system, known as Alternative 2 - Centralized Water
5 Facilities, includes new and expanded facilities for this utility's
6 needs through the year 2015 and beyond at a cost of 9.5 million
7 dollars. This broad brush approach would obviously be good for
8 the utility but in no way solves the problem in a cost effective
9 manner.

10 I believe that the study should have concentrated a
11 study into the cause and cure of the water quality problems at the
12 southwest portion of the service area served by well nos. 8 and 9
13 where most of the water quality complaints have come from.
14 Indeed, the Chelsea, Wyndtree and Wyndgate Subdivisions and
15 surrounding areas are the locations of most of the complaints of
16 "black water" and all of these areas are served by wells nos. 8 and
17 9. During my investigation, I asked several of the customers in
18 these areas when they first started experiencing the "black water"
19 problem. Without exception, each consumer stated that is had only
20 been 4 to 5 years ago and they then volunteered that is was at the
21 time that the new wells nos. 8 and 9 were added to the system.

22 Therefore, the water source from wells nos. 8 and 9
23 is highly suspect as being involved with the water quality problems
24 in this area. At the very least, a detailed study of these wells should
25 be performed. If a single packed tower aeration unit at these wells
could solve the water quality problem, the cost would only be a

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fraction of the estimates which the utility's study concluded for the entire system.

Q. What independent studies did you perform during your investigation of the water quality of Aloha Utilities Seven Springs water system?

A. I employed an independent testing laboratory, Savannah Laboratories & Environmental Services, Inc. to accompany me to the Aloha service area to collect samples at five of the eight Aloha wells for testing. It was necessary for the Office of Public Counsel's (OPC) attorney to arrange for access to the well sites with the attorney for Aloha Utilities who wanted to be present during the sampling along with Aloha officials and their testing lab.

With these arrangements made, I traveled to the Aloha service area along with OPC's attorney and the lab technician from Savannah Laboratories. We were met at the site by Alohas' attorney, Corporate President and their system superintendent along with a technician from their testing lab. Additionally, Attorney Ralph Jaeger and Engineer Robert Crouch were present representing the Public Service Commission. Together we all traveled to well sites 1, 3, 6, 8 & 9 and obtained raw and finished water samples for testing. Photographs of each of these well sites were taken. (Attached hereto as Exhibit TLB-1).

Q. What parameters did the Savannah Laboratories test for and what was the results of the testing of the raw and finished water from these wells?

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A. The test results (Attached hereto as Exhibit TLB-2) are very puzzling. The Lab tested for Copper, Hardness, Sulfate, Color, Odor, pH and Sulfides in both the raw and finished water. The test results are remarkable for their lack of detection of sulfides and sulfates in both the raw and finished water samples. All samples tested for each of the five wells found sulfides below 0.10 mg/l which is the detection limit. Similarly, the tests for sulfates at all wells were below 5 mg/l which is the detection limit for this parameter. This is indeed a strange finding when the utility has previously admitted that their raw well water contains modest amounts of hydrogen sulfide and the finished water has these sulfides converted to sulfates. The test results show a moderately hard water with hardness ranging from 180 mg/l to 220 mg/l. The test results for copper were also below the detection limit of 0.02 mg/l for both raw and finished water for all wells except for a copper level of 0.046 mg/l in the finished water from well no. 9. Test for pH and color also showed these parameters to be within the acceptable range.

These test results would lead one to think that the water from these five Aloha Wells was almost pristine and of a very high quality. However, the tests for odor from the raw and finished water of all of the wells except for well no. 6 have Threshold Order Numbers in excess of the Florida DEP Secondary Drinking Water Standard of 3. The tests for the finished water from well nos. 1, 3 & 9 showed Threshold Odor Numbers of 16 which is more than 5

1 times the FDEP standard for drinking water.

2 Q. What do you conclude from these test results?

3 A. I was at first extremely puzzled by the seemingly high quality of the
4 well water tested in light of the history of this utility with water
5 quality problems at the customer residences consisting of odor,
6 taste and discolored water. I then investigated the very high odor
7 test results from well nos. 1, 3 & 9. The Laboratory informed me
8 that the odor was a very strong chlorine odor.

9 It then became clear to me that the utility or someone had
10 heavily dosed the raw and finished water of the wells with chlorine
11 on the morning of August 4, 1999 prior to our arrival at the site for
12 sampling. The heavy chlorine dosing would have lowered the
13 sulfides and sulfates below detection limits and therefore the testing
14 was rendered worthless. Certainly the utility cannot operate the
15 water system with such high chlorine dosing. In fact, the utility had
16 to lower the chlorine dosage rate in September, 1995 in response to
17 EPA requirements for lowering of trihalomethanes which are
18 disinfection by-products which are formed when natural organics in
19 water react with chlorine. The trihalomethanes are considered by
20 the EPA to be primary contaminants and possibly carcinogenic. It
21 is certainly interesting to note that the discolored water complaints
22 began to increase shortly after the chlorine dosage was lowered
23 which is of course also the time when wells nos. 8 and 9 were
24 added to the system in December, 1995.

25 Q. Can you prove that Aloha Utilities intentionally tried to rig the test

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results by adding a heavy dosage of chlorine to the raw and finished well water before you and Savannah Laboratories arrived at the area?

A. No, I cannot prove that the utility added the heavy doses of chlorine to the raw and finished well water. I do have strong suspicions about the matter based on the results of the odor tests of the raw and finished water. Obviously, someone added the chlorine.

Q. Mr. Biddy, can you say to a reasonably scientific certainty that both the raw and finished well water was subjected to extraordinary chlorination, such that the testing you had performed for sulfides was affected?

A. Yes, I can. That is my professional opinion.

Q. What specifics lead you to this conclusion?

A. Three considerations: first, that the Utility itself reported to this commission that its water contained sulfides and sulfates, whereas the samples taken and analyzed did not. Second, it is my experience over many years of working in environmental engineering in the costal areas of our state that water from these areas invariably contains significant, measurable sulfides and sulfates, whereas the samples taken and analyzed did not. Lastly, that the water samples taken retained significant evidence of chlorination, long after chlorine residue should have dissipated entirely.

Q. Have you excluded every other reasonable hypothesis which would

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explain the characteristics of the water you had tested?

A. I believe that I have. It is my professional opinion that the water which was tested had been chlorinated to an extent atypical of that normally provided by Aloha Utilities.

Q. What other actions did you take in connection with your investigation of the water quality of the Aloha Utilities Seven Springs Water System?

A. On the morning following the sampling of the Aloha Wells which was August 5, 1999, I took the same Savannah Laboratories technician to six different residences in the Southwest portion of Aloha's service area that is served by well nos. 8 & 9 for purposes of taking water samples for testing from inside and outside the homes. I interviewed each homeowner and obtained three water samples from each house. I also took photographs at the residences which are attached hereto as Exhibit TLB-3. The water samples were taken from both a hot water and cold water faucet in the house and an additional cold water sample was taken from a yard hose bib between the house and the meter. The Savannah Laboratories technician then carried the samples to the lab for testing.

Q. What parameter were tested for at these homes and what did the testing show?

A. The same parameters were first tested for as with the water at the wells with Copper, Hardness, Sulfates, Color, Odor, pH and Sulfides begin obtained for all three samples at each home. The

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results for sulfides and sulfates showed the same low levels as with the well samples since this water had been super-chlorinated less than twenty-four hours before. Color and pH were also found in the same acceptable range as with the well tests. Odor was now undetectable since the excess chlorine and reacted with all water in the distribution system in that area and was essentially used up. Hardness in the water from outside hose bibs was hard with values between 170 mg/l and 240 mg/l. In several homes with water softening units, the water inside the homes was very soft. The big variable in the testing was at the level of copper. The test values ranged from 0.02 mg/l at the Straighter residence on Byrnwood Dr. to an astonishing high of 16.0 mg/l at the cold water faucet in the Coogan residence on Davenport Dr. The hot water sample in the Coogan residence showed a copper level of 10.0 mg/l. These high copper contents are very much more than the FDEP action required level of 1.3 mg/l and the secondary drinking water standard of 1.0 mg/l. Further testing was then ordered from Savannah Laboratories consisting of qualitative anion screen to determine what anions might be present in the black water residue in the Coogan residence. The lab found chlorides at a level of 30 mg/l and sulfates at 20 mg/l and no sulfides. Therefore, the black water is not being caused by copper sulfide as has been the claim of Aloha Utilities in the past. Further testing was also ordered on the finished water of well no. 9 which had a strong chlorine odor. The lab found 1.4 mg/l of free chlorine in the sample even though

1 testing was performed three weeks after the sample was taken. This
2 chlorine level would have been many times higher if tested on the
3 day the sample was taken. See Exhibits TLB-4 & TLB-5 for lab
4 tests.

5 Q. What can you conclude from the water testing at the residences?

6 A. It is difficult to tell anything about the sulfate and sulfide
7 concentrations since the well water had, in my opinion, been
8 excessively chlorinated the day before the testing. What can be
9 concluded from the limited testing program at the residences is that
10 all the water faucets tested showed some amount of copper and the
11 Coogan residence had very excessive amounts in both the cold and
12 hot water taps. These copper levels of 10 to 16 mg/l are greatly in
13 excess of the FDEP Secondary Drinking Water Standard for copper
14 of 1.0 mg/l. The black residue in the Coogan water was screened
15 for anions and no sulfides were found. Therefore, at least at the
16 Coogan residence, the very black water is not due to copper sulfide
17 but from some other unknown chemical combined with copper..

18 Q. What other investigations did you perform in connection with this
19 matter?

20 A. I investigated methods available for removing the sulfides and
21 sulfates from the well water and the cost of these facilities. I found
22 that pressure filters would be by far the most cost effective method
23 for sulfide and sulfate removal. The pressure filters are installed on
24 line with the existing pressurized system and therefore do not
25 require an additional storage tank or high service pumping as

1 packed tower aeration require. The pressure filters are said to
2 remove all sulfides and sulfates and the cost for complete
3 installation at a 500 gpm well would be about #225,000 to
4 \$250,000. This cost is only about 25 percent of the cost of the
5 packed tower installation cost at a 500 gpm well as contained in the
6 "Water Facilities Upgrade Study Report" as prepared by Aloha
7 Utilities and attached to Mr. Porter's Testimony as Exhibit DWP-1.

8 Q. What would be your recommendation to the Public Service
9 Commission in this matter?

10 A. Well, first I would tell the Commission that the source of the
11 problem has not been determined yet by me or by the utility. This
12 is clear from the analysis of the black water residue at the Coogan
13 residence which does not contain any sulfides which have
14 previously been blamed by the utility as being combined with
15 copper at the residences to cause the black water problem.
16 Therefore, I would recommend to the Commission that the Utility
17 again be ordered to study the problem in a comprehensive manner
18 by concentrating an investigation in the areas of black water
19 complaints including the wells which serve these areas and
20 determine for certain what is causing the water quality problems
21 and that the utility develop a cost effective solution to these
22 problems. I would recommend that the study further include a
23 comparison with other nearby systems such as the Pasco County
24 system particularly in regards to this system's customers who have
25 home water softening units. And finally, I would request that the

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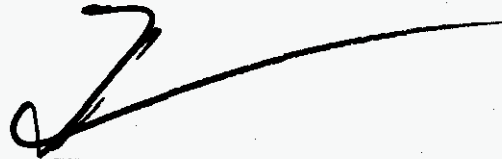
Commission order the Utility to make their well sites accessible to Office of Public Counsel's experts and that the Utility do nothing to frustrate any testing which these experts may make.

Q. Do you have anything else to add to your testimony?

A. No, not at this time.

**CERTIFICATE OF SERVICE
DOCKET NO. 960545-WS**

I HEREBY CERTIFY that a copy of the foregoing has been furnished by
U.S. Mail or hand-delivery to the following parties on this 30th day of August,
1999.



Harold McLean

Ralph Jaegar
Division of Legal Services
Fla. Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Marshall Deterding, Esq.
Rose, Sundstrom & Bentley
2548 Blairstone Pines Drive
Tallahassee, FL 32301

Representative Mike Fasano
8217 Massachusetts Avenue
New Port Richey, FL 34653

EXHIBIT TLB-1: PHOTOGRAPHS OF WELL SITES



WELL NO. 1 SAMPLING



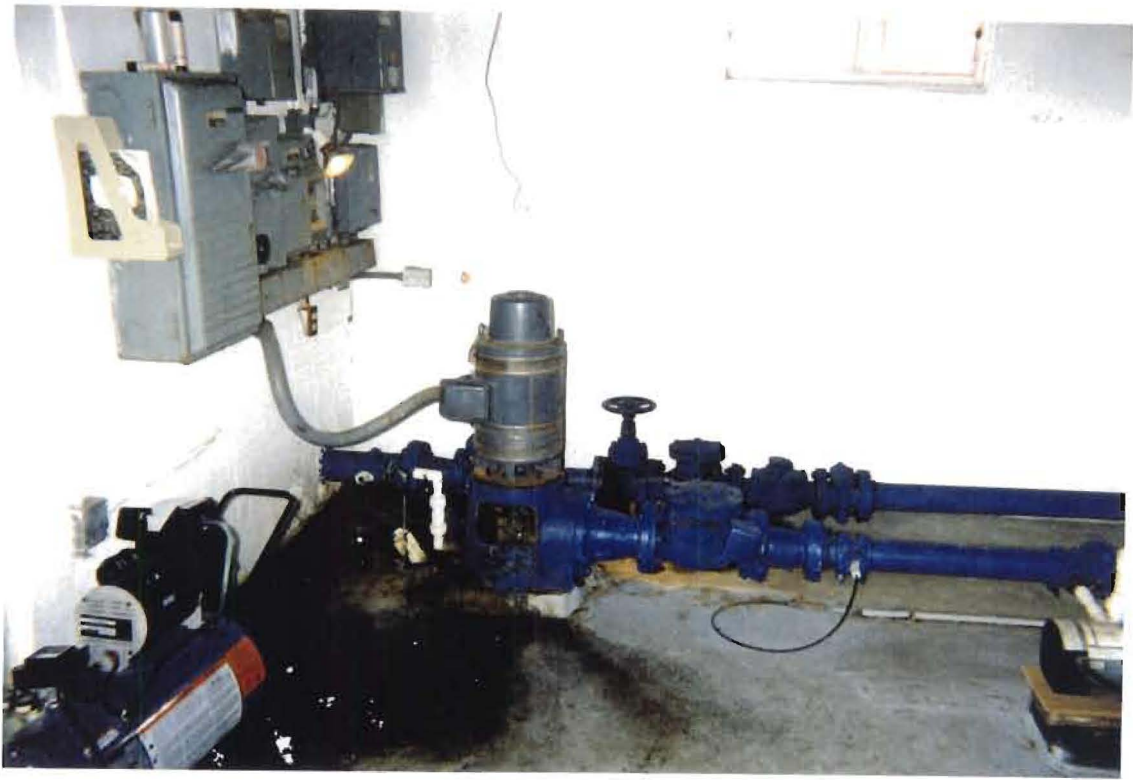
YARD VIEW OF WELL NO. 1



WELL NO. 6



YARD VIEW OF WELL NO. 6



WELL NO. 3



YARD VIEW OF WELL NO. 3



WELL NO. 8



YARD VIEW OF WELL NO. 8



YARD VIEW OF WELL NO. 9



WELL NO. 9

EXHIBIT TLB-2: WELL TEST RESULTS

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

6712 Benjamin Road • Suite 100 • Tampa, FL 33634 • (813) 885-7427 • Fax (813) 885-7049 • www.savlabs.com

LOG NO: B9-52379
Received: 04 AUG 99
Reported: 23 AUG 99

Mr. Ted Bidy
Florida Legislature-Office Of Public Counsel
2308 Clara Kee Blvd
Tallahassee, FL 32303

Project: Aloha Utilities
Sampled By: Savannah Laboratories
Code: 132790823

REPORT OF RESULTS

Page 1

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED				
52379-1	MW-1 (RAW)	08-04-99/09:50				
52379-2	MW-1 (FINISH)	08-04-99/10:03				
52379-3	MW-6 (RAW)	08-04-99/10:33				
52379-4	MW-6 (FINISH)	08-04-99/10:36				
52379-5	MW-3 (RAW)	08-04-99/11:07				
PARAMETER	52379-1	52379-2	52379-3	52379-4	52379-5	
Copper (200.7)						
Copper, mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	
Prep Date	08.10.99	08.10.99	08.10.99	08.10.99	08.10.99	
Analysis Date	08.17.99	08.17.99	08.17.99	08.17.99	08.17.99	
Hardness as CaCO ₃ , mg/l	220	220	180	180	190	
Sulfate as SO ₄ , mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	
Analysis Date	08.09.99	08.09.99	08.09.99	08.09.99	08.09.99	
Color, PCU	25	10	20	10	15	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Odor, TON	4	16	2	2	4	
Analysis Date	08.04.99	08.04.99	08.04.99	08.04.99	08.04.99	
pH, units	7.2	7.2	7.6	7.2	7.6	
Analysis Date	08.04.99	08.04.99	08.04.99	08.04.99	08.04.99	
Sulfide (376.2), mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	
Prep Date	08.10.99	08.10.99	08.10.99	08.10.99	08.10.99	
Analysis Date	08.10.99	08.10.99	08.10.99	08.10.99	08.10.99	

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

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Mr. Ted Biddy
 Florida Legislature-Office Of Public Counsel
 2308 Clara Kee Blvd
 Tallahassee, FL 32303

Project: Aloha Utilities
 Sampled By: Savannah Laboratories
 Code: 132790823
 Page 2

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED				
52379-6	MW-3 (FINISH)	08-04-99/11:12				
52379-7	MW-8 (RAW)	08-04-99/11:40				
52379-8	MW-8 (FINISH)	08-04-99/11:43				
52379-9	MW-9 (RAW)	08-04-99/12:08				
52379-10	MW-9 (FINISH)	08-04-99/12:12				
PARAMETER	52379-6	52379-7	52379-8	52379-9	52379-10	
Copper (200.7)						
Copper, mg/l	<0.020	<0.020	<0.020	<0.020	0.046	
Prep Date	08.10.99	08.10.99	08.10.99	08.10.99	08.10.99	
Analysis Date	08.17.99	08.17.99	08.17.99	08.17.99	08.13.99	
Hardness as CaCO3, mg/l	190	210	210	210	210	
Sulfate as SO4, mg/l	<5.0	<5.0	<5.0	<5.0	<5.0	
Analysis Date	08.09.99	08.09.99	08.09.99	08.09.99	08.09.99	
Color, PCU	5	20	10	20	5	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Odor, TON	16	4	4	4	16	
Analysis Date	08.04.99	08.04.99	08.04.99	08.04.99	08.04.99	
pH, units	7.2	7.6	7.2	7.7	7.1	
Analysis Date	08.04.99	08.04.99	08.04.99	08.04.99	08.04.99	
Sulfide (376.2), mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	
Prep Date	08.10.99	08.10.99	08.10.99	08.10.99	08.10.99	
Analysis Date	08.10.99	08.10.99	08.10.99	08.10.99	08.10.99	

LOG NO: B9-52379
 Received: 04 AUG 99
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Mr. Ted Biddy
 Florida Legislature-Office Of Public Counsel
 2308 Clara Kee Blvd
 Tallahassee, FL 32303

Project: Aloha Utilities
 Sampled By: Savannah Laboratories
 Code: 133890823
 Page 3

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED		
52379-11	Method Blank			
52379-12	Accuracy (%Rec)			
52379-13	Precision (%RPD)			
PARAMETER		52379-11	52379-12	52379-13
Copper (200.7)				
Copper, mg/l	<0.020		108 %	2.9 %
Prep Date	08.10.99		08.10.99	---
Analysis Date	08.10.99		08.10.99	---
Hardness as CaCO3, mg/l	<3.3		110 %	1.2 %
Sulfate as SO4, mg/l	<5.0		91 %	8.9 %
Analysis Date	08.09.99		08.09.99	---
Color, PCU	<5		100 %	0 %
Analysis Date	08.05.99		08.05.99	---
Odor, TON	<10		---	---
Analysis Date	08.04.99		---	---
pH, units	6.1		102 %	0 %
Analysis Date	08.04.99		08.04.99	---
Sulfide (376.2), mg/l	<0.10		109 %	0.92 %
Prep Date	08.10.99		08.10.99	---
Analysis Date	08.10.99		08.10.99	---

Method: EPA 600/4-79-020

DOH Certification #'s: E84282, 84385, 87279, E87052

Kathy Sheffield
 Kathy Sheffield, Project Manager

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

B95-2379

Serial Number 16914

- 5102 LaRoche Avenue, Savannah, GA 31404
- 2846 Industrial Plaza Drive, Tallahassee, FL 32301
- 414 SW 12th Avenue, Deerfield Beach, FL 33442
- 900 Lakeside Drive, Mobile, AL 36693
- 6712 Benjamin Road, Suite 100, Tampa, FL 33634
- 100 Alpha Drive, Suite 110, Destrehan, LA 70047

- Phone: (912) 354-7858 Fax: (912) 352-0165
- Phone: (904) 878-3994 Fax: (904) 878-9504
- Phone: (954) 421-7400 Fax: (954) 421-2584
- Phone: (334) 666-6633 Fax: (334) 666-6696
- Phone: (813) 885-7427 Fax: (813) 885-7049
- Phone: (504) 764-1100 Fax: (504) 725-1163

PROJECT REFERENCE <i>Alpha Utilities</i>		PROJECT NO.	P.O. NUMBER	MATRIX TYPE	REQUIRED ANALYSES				PAGE	OF	
PROJECT LOC. (State)	SAMPLER(S) NAME <i>Marty Walker</i>		PHONE	AQUEOUS (WATER) SOLID OR SEMISOLID NONAQUEOUS LIQUID (oil solvent etc) <i>PH, COLOR, PH</i> <i>DDOR</i> <i>CH, HARD</i> <i>SULFIDE</i>					STANDARD REPORT DELIVERY <input type="checkbox"/>	EXPEDITED REPORT DELIVERY (surcharge) <input type="checkbox"/>	
CLIENT NAME <i>O.P.C.</i>	CLIENT PROJECT MANAGER <i>Red Biddy</i>		FAX								
CLIENT ADDRESS (CITY, STATE, ZIP)								Date Due: _____			
SAMPLE		SL NO.	SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS SUBMITTED				REMARKS		
DATE	TIME										
<i>8-4-99</i>	<i>0950</i>		<i>MW-1 (RAW)</i>	X							
	<i>1203</i>		<i>MW-1 (Finish)</i>	X							
	<i>1033</i>		<i>MW-6 (RAW)</i>	Y							
	<i>1036</i>		<i>MW-6 (Finish)</i>	Y							
	<i>1107</i>		<i>MW-3 (RAW)</i>	X							
	<i>1112</i>		<i>MW-3 (Finish)</i>	X							
	<i>1140</i>		<i>MW-8 (RAW)</i>	Y							
	<i>1143</i>		<i>MW-8 (Finish)</i>	X							
	<i>1208</i>		<i>MW-9 (RAW)</i>	X							
	<i>1212</i>		<i>MW-9 (Finish)</i>	Y							
RELINQUISHED BY: (SIGNATURE) <i>B. P. [Signature]</i>		DATE <i>8/2/99</i>	TIME <i>1010</i>	RELINQUISHED BY: (SIGNATURE) <i>Marty Walker</i>		DATE <i>8-4-99</i>	TIME <i>1305</i>	RELINQUISHED BY: (SIGNATURE)		DATE	TIME
RECEIVED BY: (SIGNATURE) <i>Marty Walker</i>		DATE <i>8/2/99</i>	TIME <i>1010</i>	RECEIVED BY: (SIGNATURE) <i>Charles Elby</i>		DATE <i>8-4-99</i>	TIME <i>1305</i>	RECEIVED BY: (SIGNATURE)		DATE	TIME
LABORATORY USE ONLY											
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>Charles Elby</i>		DATE <i>8-4-99</i>	TIME <i>1356</i>	CUSTODY INTACT <input type="checkbox"/> YES <input type="checkbox"/> NO	CUSTODY SEAL NO.	SL LOG NO. <i>B95-2379</i>	LABORATORY REMARKS:				

ORIGINAL

**EXHIBIT TLB-3: PHOTOGRAPHS AT RESIDENCES WHERE TESTING
OCCURRED**



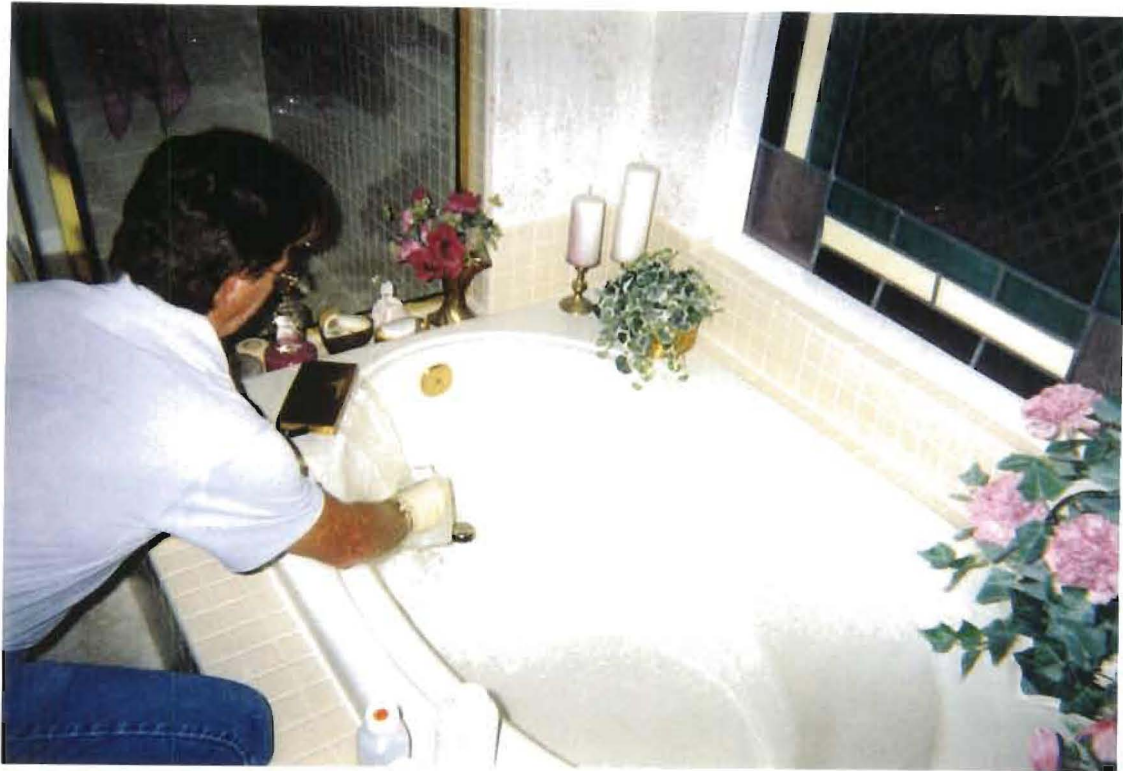
ST. ARNO RESIDENCE AT 6809 WILLETS DR.



**40 GALLON HOT WATER
HEATER AT ST. ARNO
RESIDENCE**



WATER SOFTING UNIT AT ST. ARNO RESIDENCE



WATER SAMPLING AT YANNA RESIDENCE AT 7437 CHELTENHAM COURT



**WATER SOFTENING UNIT
AT YANNA RESIDENCE**



STRAUDER RESIDENCE AT 2528 BYRNWOOD DRIVE



**HOT WATER HEATER
AT STRAUDER
RESIDENCE (NOTE
TWO SHORT COPPER
LINES ON HOT WATER
HEATER WHICH ARE
ONLY COPPER PIPES
IN RESIDENCE)**



DAVIS RESIDENCE AT 2727 CYPRESS HOLLOW



**HOT WATER HEATER
AT DAVIS RESIDENCE**



WATER SOFTENING UNIT AT COOGAN RESIDENCE



WATER SOFTENING SALT PELLETS AT COOGAN RESIDENCE



**HOT WATER HEATER AT
COOGAN RESIDENCE AT
1430 DAVENPORT DRIVE**

**EXHIBIT TLB-4: LAB TEST RESULTS FOR WATER SAMPLES AT
RESIDENCES**

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

6712 Benjamin Road • Suite 100 • Tampa, FL 33634 • (813) 885-7427 • Fax (813) 885-7049 • www.savlabs.com

LOG NO: B9-52407
 Received: 05 AUG 99
 Reported: 18 AUG 99

Mr. Ted Biddy
 Florida Legislature-Office Of Public Counsel
 2308 Clara Kee Blvd
 Tallahassee, FL 32303

Project: Aloha Utilities
 Sampled By: Savannah Laboratories
 Code: 130190824

Page 1

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED				
52407-1	Cold-6809 Willets/Mr. St. Arno	08-05-99/10:15				
52407-2	Hot-6809 Willets/Mr. St. Arno	08-05-99/10:18				
52407-3	Outside-6809 Willets/Mr. St. Arno	08-05-99/10:32				
52407-4	Cold-7437 Cheltam/Mr. Yanna	08-05-99/11:02				
52407-5	Hot-7437 Cheltam/Mr. Yanna	08-05-99/11:05				
PARAMETER	52407-1	52407-2	52407-3	52407-4	52407-5	
Copper (200.7)						
Copper, mg/l	0.052	0.12	0.047	0.46	0.45	
Prep Date	08.12.99	08.12.99	08.12.99	08.12.99	08.12.99	
Analysis Date	08.16.99	08.16.99	08.16.99	08.16.99	08.16.99	
Hardness as CaCO ₃ , mg/l	<3.3	22	210	<3.3	5.7	
Sulfate as SO ₄ , mg/l	<5.0	<5.0	<5.0	6.6	<5.0	
Analysis Date	08.09.99	08.09.99	08.09.99	08.09.99	08.09.99	
Color, PCU	5	5	10	5	15	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Odor, TON	<1	<1	<1	<1	<1	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
pH, units	7.0	7.3	7.1	7.1	7.3	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Sulfide (376.2), mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	
Prep Date	08.11.99	08.11.99	08.11.99	08.11.99	08.11.99	
Analysis Date	08.11.99	08.11.99	08.11.99	03.11.99	08.11.99	

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LOG NO: B9-52407
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 Reported: 18 AUG 99

Mr. Ted Bidy
 Florida Legislature-Office Of Public Counsel
 2308 Clara Kee Blvd
 Tallahassee, FL 32303

Project: Aloha Utilities
 Sampled By: Savannah Laboratories
 Code: 162490824

REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES					DATE/ TIME SAMPLED
52407-6	Outside-7437 Cheltam/Mr. Yanna					08-05-99/11:22
52407-7	Cold-2727 Cypress Hollow/Mr. Davis					08-05-99/12:28
52407-8	Hot-2727 Cypress Hollow/Mr. Davis					08-05-99/12:32
52407-9	Outside-2727 Cypress Hollow/Mr. Davis					08-05-99/12:44
52407-10	Cold-2528 Brynwood/Mr. Stouder					08-05-99/13:08
PARAMETER	52407-6	52407-7	52407-8	52407-9	52407-10	
Copper (200.7)						
Copper, mg/l	0.32	0.20	0.21	0.037	<0.020	
Prep Date	08.12.99	08.12.99	08.12.99	08.12.99	08.12.99	
Analysis Date	08.16.99	08.16.99	08.16.99	08.16.99	08.16.99	
Hardness as CaCO ₃ , mg/l	<3.3	170	170	210	230	
Sulfate as SO ₄ , mg/l	<5.0	<5.0	7.4	6.0	<5.0	
Analysis Date	08.09.99	08.09.99	08.09.99	08.09.99	08.09.99	
Color, PCU	10	10	10	5	5	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Odor, TON	<1	<1	<1	<1	<1	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
pH, units	7.3	7.2	7.2	7.4	7.5	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Sulfide (376.2), mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	
Prep Date	08.11.99	08.11.99	08.11.99	08.11.99	08.11.99	
Analysis Date	08.11.99	08.11.99	08.11.99	08.11.99	08.11.99	

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LOG NO: B9-52407

Received: 05 AUG 99

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2308 Clara Kee Blvd
Tallahassee, FL 32303

Project: Aloha Utilities
Sampled By: Savannah Laboratories
Code: 162490824

REPORT OF RESULTS

Page 3

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED				
52407-14	Hot-2528 Brynwood/Mr. Stouder	08-05-99/13:12				
52407-15	Outside-2528 Brynwood/Mr. Stouder	08-05-99/13:24				
52407-16	Cold-1430 Davenport/Mr. Coogan	08-05-99/13:50				
52407-17	Hot-1430 Davenport/Mr. Coogan	08-05-99/13:46				
52407-18	Outside-1430 Davenport/Mr. Coogan	08-05-99/14:12				
PARAMETER	52407-14	52407-15	52407-16	52407-17	52407-18	
Copper (200.7)						
Copper, mg/l	0.062	<0.020	16	10	0.11	
Prep Date	08.12.99	08.12.99	08.12.99	08.12.99	08.12.99	
Analysis Date	08.16.99	08.16.99	08.16.99	08.16.99	08.16.99	
Hardness as CaCO3, mg/l	220	240	<3.3	<3.3	<3.3	
Sulfate as SO4, mg/l	<5.0	<5.0	7.9	12	<5.0	
Analysis Date	08.09.99	08.09.99	08.09.99	08.09.99	08.09.99	
Color, PCU	5	15	15	10	10	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Odor, TON	<1	<1	<1	<1	<1	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
pH, units	7.6	7.7	7.6	7.7	7.6	
Analysis Date	08.05.99	08.05.99	08.05.99	08.05.99	08.05.99	
Sulfide (376.2), mg/l	<0.10	<0.10	<0.10	<0.10	<0.10	
Prep Date	08.11.99	08.11.99	08.11.99	08.11.99	08.11.99	
Analysis Date	08.11.99	08.11.99	08.11.99	08.11.99	08.11.99	

LOG NO: B9-52407
 Received: 05 AUG 99
 Reported: 18 AUG 99

Mr. Ted Biddy
 Florida Legislature-Office Of Public Counsel
 2308 Clara Kee Blvd
 Tallahassee, FL 32303

Project: Aloha Utilities
 Sampled By: Savannah Laboratories
 Code: 130190824

REPORT OF RESULTS

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LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED		
52407-19	Cold-1202 Middlesex/Mr. Oko	08-05-99/14:28		
52407-20	Hot-1202 Middlesex/Mr. Oko	08-05-99/14:35		
52407-21	Outside-1202 Middlesex/Mr. Oko	08-05-99/14:50		
PARAMETER		52407-19	52407-20	52407-21
Copper (200.7)				
Copper, mg/l		0.048	0.48	0.11
Prep Date		08.12.99	08.12.99	08.12.99
Analysis Date		08.16.99	08.16.99	08.16.99
Hardness as CaCO3, mg/l		22	7.0	210
Sulfate as SO4, mg/l		11	12	6.0
Analysis Date		08.09.99	08.09.99	08.09.99
Color, PCU		5	10	10
Analysis Date		08.05.99	08.05.99	08.05.99
Odor, TON		<1	<1	<1
Analysis Date		08.05.99	08.05.99	08.05.99
pH, units		7.5	7.7	7.9
Analysis Date		08.05.99	08.05.99	08.05.99
Sulfide (376.2), mg/l		<0.10	<0.10	<0.10
Prep Date		08.11.99	08.11.99	08.11.99
Analysis Date		08.11.99	08.11.99	08.11.99

LOG NO: B9-52407
 Received: 05 AUG 99
 Reported: 18 AUG 99

Mr. Ted Braddy
 Florida Legislature-Office Of Public Counsel
 2308 Clara Kee Blvd
 Tallahassee, FL 32303

Project: Aloha Utilities
 Sampled By: Savannah Laboratories
 Code: 130190824

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REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES	DATE/ TIME SAMPLED		
52407-11	Method Blank			
52407-12	Accuracy (%Rec)			
52407-13	Precision (%RPD)			
PARAMETER		52407-11	52407-12	52407-13
Copper (200.7)				
Copper, mg/l		<0.020	106 %	3.4 %
Prep Date		08.12.99	08.12.99	---
Analysis Date		08.16.99	08.16.99	---
Hardness as CaCO3, mg/l		<3.3	113 %	1.6 %
Sulfate as SO4, mg/l		<5.0	95 %	5.8 %
Analysis Date		08.09.99	08.09.99	---
Color, PCU		<5	100 %	0 %
Analysis Date		08.05.99	08.05.99	---
Odor, TON		<1	---	---
Analysis Date		08.05.99	---	---
pH, units		6.3	104 %	0.17 %
Analysis Date		08.05.99	08.05.99	---
Sulfide (376.2), mg/l		<0.10	104 %	0 %
Prep Date		08.11.99	08.11.99	---
Analysis Date		08.11.99	08.11.99	---

Method: EPA 600/4-79-020

DOH Certification #'s: E84282, 84385, 87279, E87052

Kathy Sheffield
 Kathy Sheffield, Project Manager

EXHIBIT TLB-5: TEST RESULTS OF FURTHER LAB TESTS OBTAINED

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

6712 Benjamin Road • Suite 100 • Tampa, FL 33634 • (813) 885-7427 • Fax (813) 885-7049 • www.savlabs.com


Case Narrative: SL Project B9-52407

Date: August 30, 1999
Client: Florida Legislature - Office of Public Counsel
Project: Atoha Utilities
Laboratory: Savannah Laboratories and Environmental Services, Inc.
Tampa Bay Division

Eighteen aqueous samples were received on August 5, 1999 for Copper, Hardness, Sulfate, Color, Odor, pH, and Sulfide analyses. Sulfide was not detected in any of the samples. Copper was detected in varying concentrations, with the highest level in the sample identified as B952407-16 "Cold-1430 Davenport/Mr. Coogan". The client requested additional information about that sample. A qualitative anion screen was run, with a chloride result of ~30mg/l and a sulfate result of ~20mg/l. These results are considered qualitative only.

The sample appeared to have a fine black precipitant in the bottom of the container. The appearance of the precipitant did not resemble copper sulfide, which would be more granular and would tend to suspend better and longer in solution. The precipitant in the sample bottle settled very quickly into the bottom of the container. It was more indicative of charcoal (carbon) fines in both appearance and settleability.

No significant QA/QC problems were encountered.


Kathy Sheffield, Project Manager

www.savlabs.com

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Case Narrative: SL Project B9-32379

Date: August 30, 1999

Client: Florida Legislature - Office of Public Counsel

Project: Aloha Utilities

Laboratory: Savannah Laboratories and Environmental Services, Inc.
Tampa Bay Division

Ten aqueous samples of raw and finished water were received on August 4, 1999 for Copper, Hardness, Sulfate, Color, Odor, pH, and Sulfide analyses. Sulfide was not detected in any of the samples. Strong chlorine odors were detected in the finished water samples from MW-1, MW-3, and MW-9. The sample identified as "MW-9 (FINISH)" was analyzed on 8/25/99 for residual chlorine at client request. The result was 1.4 mg/l residual chlorine, even though the sample was analyzed three weeks outside holding time and had not been refrigerated, as per the analytical method. This would be indicative of a high residual chloride value at the time of sample collection.

No significant QA/QC problems were encountered with the original analyses.


Kathy Sheffield, Project Manager

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073 - 111

Serial Number 10913

SL SAVANNAH LABORATORIES & ENVIRONMENTAL SERVICES, INC.

- 5102 LaRoche Avenue, Savannah, GA 31404
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- Phone: (813) 885-7427 Fax: (813) 885-7049
- Phone: (504) 764-1100 Fax: (504) 725-1163

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

PROJECT REFERENCE <i>Alpha Utilities</i>		PROJECT NO.	P.O. NUMBER	MATRIX TYPE	REQUIRED ANALYSES	PAGE	OF
PROJECT LOC. (State) <i>FL</i>	SAMPLER(S) NAME <i>Mark Walker</i>	PHONE	FAX	AQUEOUS (WATER) SOLID OR SEMISOLID AIR NON-AQUEOUS LIQUID (oil solvent, etc.) <i>Sox, Colby, PH</i> <i>Other</i> <i>See Hand.</i> <i>2 mg Sulfide</i> <i>2 mg Nitrate</i>	<input type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT DELIVERY (surcharge) Date Due: _____		
CLIENT NAME <i>D.P.C.</i>		CLIENT PROJECT MANAGER <i>Ted Biddy</i>					
CLIENT ADDRESS (CITY, STATE, ZIP)							

SAMPLE DATE	TIME	SL NO.	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS SUBMITTED				REMARKS	
8-5-99	1015		Cold - 6809 Willets/mr. St. Arno	X					
	1018		Hot - 6809 Willets/mr. St. Arno	X					
	1032		Outside: 6809 Willets/mr. St. Arno	X					
	1102		Cold - 7437 Chetam/mr. Yanna	X					
	1105		Hot - 7437 Chetam/mr. Yanna	X					
	1122		Outside 7437 Chetam/mr. Yanna	X					
	1228		Cold - 2727 Cross/Wallow/mr. Davis	X					
	1232		Hot	X					
	1244		Outside	X					
	1308		Cold - 2528 Brynwood/mr. Stander	X					
	1312		Hot	X					
	1324		Outside	X					

RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i>	DATE 8/2/99	TIME 1010	RELINQUISHED BY: (SIGNATURE) <i>Mark Walker</i>	DATE 8-5-99	TIME 1613	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY: (SIGNATURE) <i>Mark Walker</i>	DATE 8-2-99	TIME 1010	RECEIVED BY: (SIGNATURE) <i>Charles Elby</i>	DATE 8-5-99	TIME 1613	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY								
RECEIVED FOR LABORATORY BY: (SIGNATURE) <i>Charles Elby</i>	DATE 8-5-99	TIME 1641	CUSTODY INTACT <input type="checkbox"/> YES <input type="checkbox"/> NO	CUSTODY SEAL NO.	SL LOG NO. 885-2407	LABORATORY REMARKS:		

ORIGINAL