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3M

AR 226-3938

April 13, 2010

Document Processing Center (Mail Code 7407M)
Room 6428
Attention: TSCA 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1200 Pennsylvania Ave. N.W.
Washington, D.C. 20460

Re: **TSCA Section 8(e) Notice: Sulfonate-based and Carboxylic-based
Fluorochemicals, Docket 8EHQ-0598-373 – Emerald Coast Utilities
Authority Information**

Dear Sir/Madam:

3M is one of several defendants in litigation in federal court in Pensacola, Florida, brought by the Emerald Coast Utilities Authority ("ECUA"). ECUA contends that low levels of PFOA and PFOS are present in some of its drinking water supply wells. ECUA indicated that it had tested four drinking water supply wells in November 2006 and identified the presence of PFOA and PFOS at low parts per trillion levels in those wells. As EPA may be aware, ECUA published a summary of those data in its 2006 annual Consumer Confidence Report under the Safe Drinking Water Act, which is reported to the Florida Department of Environmental Protection pursuant to EPA regulations.

As part of discovery in the litigation, ECUA has now provided 3M and the other parties with additional data in the form of a laboratory report from Columbia Analytical Services, reporting on testing conducted for the litigation of 28 supply wells (including the original four wells) for various perfluorinated alkyl acids. We enclose a copy of the 2006 report and this more recent 2010 report. 3M cannot vouch for the reliability of the data. The analyses do not appear to follow EPA Method 537 for determination of perfluorinated alkyl acids in drinking water, and we have not been provided with the analytical method, method validation or supporting quality control data.

Although 3M does not believe the enclosed data meet the reporting threshold of TSCA Section 8(e), we recognize the ongoing work by U.S. EPA to assess fluorochemical exposure pathways, and we are therefore placing a notification in the TSCA 8(e) docket.

CONTAINS NO CBI

If you have any questions, please do not hesitate to contact Dr. William Reagen at (651) 733-9739 or Gary Hohenstein at (651) 737-3570.

Sincerely,

A handwritten signature in black ink that reads "Jean B. Sweeney (JBS)". The signature is written in a cursive, flowing style.

Jean B. Sweeney
Staff Vice President
3M Environmental, Health and Safety Operations

Enclosures (2)



Baron & Budd, P.C.

**Emerald Coast Utilities Authority -
Production Well Sampling Results
Escambia County, Florida**

February 2010

Final Letter Report

CDM Transmittal

Confidential Client Material



3522 Thomasville Road, Suite 300
Tallahassee, Florida 32309
Office: 850-386-9500
Fax: 850-668-6745

To: Mr. Chad A. West, Attorney **From:** David L. Anderson
Organization/ Baron & Budd, P.C.
Address: 3102 Oak Lawn Avenue, Suite 1100 **Date:** February 24, 2010
Dallas, Texas 75219
Re: ECUA – Production Well Sampling Results
Escambia County, Florida

Job #: 95779-75319

Via: *Mail:* *Overnight:* X *Courier:*

Enclosed please find:

For your information

X

For your review

X

For your signature

Approved

Approved as noted

Returned to you for correction

Message:

Mr. West,

Camp Dresser & McKee Inc. is pleased to submit this letter report to Baron & Budd summarizing the analytical results of the February 2010 comprehensive groundwater sampling event. One original (with Appendix D lab data) and one copy (Appendix D compact disk) are provided for your use.

If you have any questions regarding this submittal, please contact me at (850) 386-9509 or by email at andersondl@cdm.com.

Copy: Michael H. Edgar – CDM/Tallahassee

Signed



3522 Thomasville Road, Suite 300
Tallahassee, Florida 32309
tel: +1 850 386-9500
fax: +1 850 668-6745

February 24, 2010

CONFIDENTIAL CLIENT MATERIAL

Mr. Chad A. West, Attorney at Law
Baron & Budd, P.C.
3102 Oak Lawn Avenue, Suite 1100
Dallas, Texas 75219

Subject: Emerald Coast Utilities Authority - Production Well Sampling Results
Escambia County, Florida
CDM Project No. 95779-75319

Dear Mr. West:

Camp Dresser & McKee Inc. (CDM) is pleased to present this letter report to Baron & Budd, P.C. (B&B) summarizing the February 2010 groundwater sampling of production wells within the Emerald Coast Utilities Authority (ECUA) water distribution system. These services were performed in accordance with CDM's scope of services and cost estimate dated January 15, 2010 – approved by B&B on January 25, 2010.

Groundwater samples were collected and analyzed for Perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and other related fluorinated compounds. The U.S. Environmental Protection Agency and the Florida Department of Environmental Protection (FDEP) have not established maximum contaminant levels for these compounds.

This letter report presents the groundwater sampling methods and groundwater analytical results.

Groundwater Sampling Methods

Raw and treated groundwater samples were collected from 28 of the 32 active production wells within the ECUA water distribution system. A production well location map (which identifies wells with raw water treatment systems) is included in **Appendix A**. From February 1 to February 3, 2010, samples were collected by a Florida-Registered Professional Geologist trained and experienced in FDEP sampling protocols in accordance with the procedures described in the FDEP Standard Operating Procedures (SOP) FS 2000 and FS 2300. FDEP's sampling documentation procedures were followed as described in FDEP SOP FD 5000 and FD 5100. Field parameters (pH, specific conductance, temperature, dissolved oxygen, and turbidity) were measured during purging in accordance with procedures described in FDEP SOPs FT 1100, FT 1200, FT 1400, FT 1500, and FT 1600. In addition, oxidation-reduction potential readings were collected in the field.





Mr. Chad A. West, Attorney at Law
February 24, 2010
Page 2

ECUA staff escorted CDM staff during the sampling activities due to security reasons. A photograph log of all 32 wells is included in **Appendix B**.

The following sample collection procedures were followed at each well location:

- Samples were collected during active groundwater pumping.
- Sampling ports (raw and treated) were opened upon arrival at each site to flush the lines.
- Field parameters were collected every 3 minutes and recorded until stable.
- Raw samples were collected at the wellhead and treated samples were collected at the nearest sampling port downstream of final treatment.
- Samples were collected at a flow rate of approximately 100 milliliters per minute in laboratory supplied bottleware.
- Samples were labeled, bagged, and stored on ice to maintain a temperature of 4 degrees Celsius (4°C).
- Chain-of-custody forms were completed prior to departure from an individual well site location.
- Samples remained in the custody of CDM prior to nightly overnight shipment (next morning delivery) to the laboratory.

At the request of B&B, groundwater samples were analyzed by Columbia Analytical Services (CAS) of Kelso, Washington. Each sample was analyzed for PFOS, PFOA, and other fluorinated compounds by CAS Method HPLC/MS - PFOA. Three field blanks samples were collected (one each day prior to initiating sampling) to document:

- Sampling environment.
- Analyte-free water chemistry.
- Clean bottleware.
- Sample transport.
- Storage conditions as required by FDEP field quality control requirements (FDEP SOP FQ 1230).



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 Page 3

Matrix spike/matrix spike duplicate samples (raw and treated) were collected at the Bronson and McAllister production wells as requested by CAS.

Groundwater Analytical Results

The following 28 production wells were sampled in the following order:

February 1, 2010	February 2, 2010	February 3, 2010
1. Ellyson.	9. University Parkway.	19. Hagler Well Plant.
2. Davis.	10. McCorry.	20. Spanish Trail.
3. Olive.	11. Dunaway.	21. Airport North.
4. Carriage Hills.	12. Lillian.	22. McAllister.
5. Watson.	13. Bronson.	23. Humphrey.
6. Kingsfield Road.	14. West Pensacola.	24. Broad.
7. Cantonment.	15. "W" & Avery.	25. Tennant.
8. Nine Mile Road.	16. West Plant Well.	26. Muldoon.
	17. "F" & Scott.	27. Villa Drive.
	18. No. 6 Well Plant.	28. Royce Street.

The following four wells were not sampled due to the reasons stated below:

1. Avondale - the pump motor was hit by lightning in late January 2010 and was not in operation during the sampling event. *See Page 26 in Appendix B.*
2. Ensley - the site has been inactive for several years and ECUA has no plans to reactivate the well. The discharge lines from the well have been plugged and the wellhead has no power.. *See Page 30 in Appendix B.*
3. Sweeney - the entire site is currently undergoing complete rehabilitation including underground piping, electrical, a new pump house building, and well modifications. This project is expected to be complete by the fall of 2010. *See Page 31 in Appendix B.*
4. OLF-4A - the well was down because of routine maintenance including extraction of the well screen for cleaning. *See Page 32 in Appendix B.*



Mr. Chad A. West, Attorney at Law
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Table 1 is a summary of the CAS analytical data. PFOA concentrations ranged from non-detect (in several wells) to 68 nanograms per liter (ng/L (or parts per trillion)) in the treated sample from the Bronson well. PFOS concentrations ranged from 0.19 ng/L in the raw sample collected from the Cantonment well to 240 ng/L in the treated sample collected from the Hagler well.

A groundwater sample collection sheet (raw and treated) for each well location and field equipment calibration logs are in **Appendix C**. Hard copies of the CAS analytical reports (including chain-of-custodies, Tier IV Quality Assurance Data Validation Package, matrix spike/matrix spike duplicate results, and surrogate results) and a compact disk of the data are in **Appendix D**.

If you have any questions concerning this letter report, please call me at (850) 386-9503 or email me at edgarmh@cdm.com.

Sincerely,

A handwritten signature in black ink that reads 'Michael H. Edgar'.

Michael H. Edgar

Vice President

Camp Dresser & McKee Inc.

Enclosures:

Appendix A - ECUA Production Well Location Map

Appendix B - Sample Port Photograph Log

Appendix C - Groundwater Sample Logs/Field Calibration Logs

Appendix D - Analytical Data/Chain-of-Custodies (Compact Disk and Hard Copy)

c: David L. Anderson - CDM/TAL

Sample Date	4.2.10			4.2.10			4.2.10			4.2.10			4.2.10			4.2.10			4.2.10		
	Units	Standard	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw	Treated	Raw
	ng/L	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
	ng/L	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U
	ng/L	0.029 U	0.12 J	0.13 J	0.35 J	0.15 J	0.14 J	1.9 J	1.9 J	4.5 J	12	9.7	0.54 J	0.25 J	1.1 J	1.1 J	1.2 J	1.2 J	1.2 J	1.2 J	1.1 J
	ng/L	0.47 J	0.18 J	0.55 J	0.42 J	0.29 J	0.15 J	2.0 J	1.8 J	5.4	8.7	0.54 J	0.25 J	1.1 J	1.1 J	1.1 J	1.2 J	1.2 J	1.2 J	1.2 J	1.1 J
	ng/L	0.095 U	0.095 U	0.18 J	0.095 U	0.095 U	0.095 U	0.26 J	0.095 U	0.16 J	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.095 U	0.30 J
	ng/L	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.60 J	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U
	ng/L	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U	0.85 U
	ng/L	0.081 U	0.12 J	0.081 U	0.54 J	0.15 J	0.093 J	2.9 J	3.0 J	7.7	18	0.74 J	0.081 U	1.6 J	1.7 J	1.7 J	1.6 J	1.6 J	1.6 J	1.7 J	1.2 J
	ng/L	0.19 J	0.18 J	0.18 J	1.7 J	1.8 J	0.55 J	6.7	6.8	33	98	2.5 J	0.17 J	5.8	5.9	5.9	5.8	5.8	5.9	5.9	4.1 J
	ng/L	0.23 J	0.35 J	0.11 U	1.1 J	1.0 J	0.33 J	4.7 J	4.6 J	14	37	0.92 J	0.21 J	2.7 J	2.7 J	2.7 J	2.7 J	2.7 J	2.8 J	2.8 J	1.8 J
	ng/L	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.67 J	0.56 J	0.98 J	1.6 J	0.83 J	0.12 U	0.41 J	0.41 J	0.41 J	0.41 J	0.41 J	0.47 J	0.47 J	0.56 J
	ng/L	0.18 J	0.31 J	0.26 J	0.95 J	0.88 J	0.38 J	13	11	58	81	5.9	0.28 J	5.5	5.5	5.5	5.5	5.5	5.9	5.9	7.1
	ng/L	0.066 U	0.066 U	0.066 U	5.2	5.0	0.066 U	8.2	8.5	25	68	2.7 J	0.066 U	4.4 J	4.4 J	4.4 J	4.4 J	4.4 J	5.0	5.0	4.4 J
	ng/L	0.33 J	0.25 J	0.14 J	0.88 J	0.82 J	0.18 J	5.1	5.2	13	32	0.87 J	0.38 J	2.5 J	2.5 J	2.5 J	2.5 J	2.5 J	2.6 J	2.6 J	1.4 J
	ng/L	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
	% Recovery	98	78	86	97	77	94	83	79	95	89	90	93	98	91	91	98	93	91	91	94
	% Recovery	73	55	11*	68	66	68	74	71	72	74	68	80	74	70	70	74	80	70	70	73
	% Recovery	94	78	86	93	82	85	88	92	105	90	102	100	105	107	107	105	100	107	107	112
	% Recovery	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	% Recovery	75	62	75	71	72	75	80	77	83	82	73	86	84	79	82	84	86	79	79	82
	% Recovery	60	55	43*	56	47*	68	46*	48*	56	52	41*	48*	56	42*	42*	56	48*	42*	42*	49*
	% Recovery	48*	54	47*	60	49*	68	47*	39*	49*	52	44*	46*	47*	42*	42*	47*	46*	42*	42*	40*
	% Recovery	71	60	63	74	60	75	64	60	70	74	63	64	71	61	61	71	64	61	61	68
	% Recovery	70	71	75	83	81	85	89	82	81	91	83	82	96	86	86	96	82	86	86	87
	mV	NA	188	151	NA	511	340	NA	NA	346	785	NA	483	NA	604	604	NA	483	604	604	471
	Standard Units	NA	NA	7.01	5.88	7.01	5.53	6.64	7.19	5.83	7.21	5.38	7.15	5.71	7.10	7.10	5.71	7.15	7.10	7.10	6.08
	°C	NA	21.5	21.1	21.2	21.2	21.0	20.3	21.3	24.3	23.1	22.3	21.7	22.0	21.8	21.8	22.0	21.7	21.8	21.8	21.9
	uS/cm	NA	37	177	44	110	91	34	228	40	40	71	180	107	187	187	107	180	187	187	109
	mg/L	NA	4.8	3.9	7.0	6.9	4.8	4.8	3.2	3.4	0.2	5.8	3.9	7.3	5.4	5.4	7.3	3.9	5.4	5.4	3.6
	NTU	NA	0	2	0	0	0	0	2	0	0	0	0	1	1	1	1	0	1	1	0
	Observation	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
	Observation	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None	None

[illegible]

% Recovery	110	95	91	78	80	81	107	96	97	90	96	103	81	82	89	86
% Recovery	89	104	111	91	85	80	107	96	113	97	94	84	77	74	97	86
% Recovery	110	113	121	93	102	107	116	118	120	104	116	120	95	97	103	102
% Recovery	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
% Recovery	94	105	109	89	90	87	109	103	115	101	101	88	86	79	101	86
% Recovery	81	61	58	49*	44*	34*	64	63	56	54	58	77	44*	50	45*	46*
% Recovery	52	62	67	67	84	51	66	79	67	69	68	97	58	59	47*	52
% Recovery	83	92	87	74	78	75	98	101	93	89	92	117	75	84	90	93
% Recovery	88	118	118	106	100	110	129	121	118	120	118	112	109	104	113	105

[illegible]

Notes:
 ng/L Nanograms per liter (parts per trillion).
 U The analyte was analyzed for, but was not $\leq$.
 U The result is an estimated value that was $\leq$.
 • The result is an outlier. See case narrative.
 mV Millivolts.
 nmol/L Nanomoles per liter.

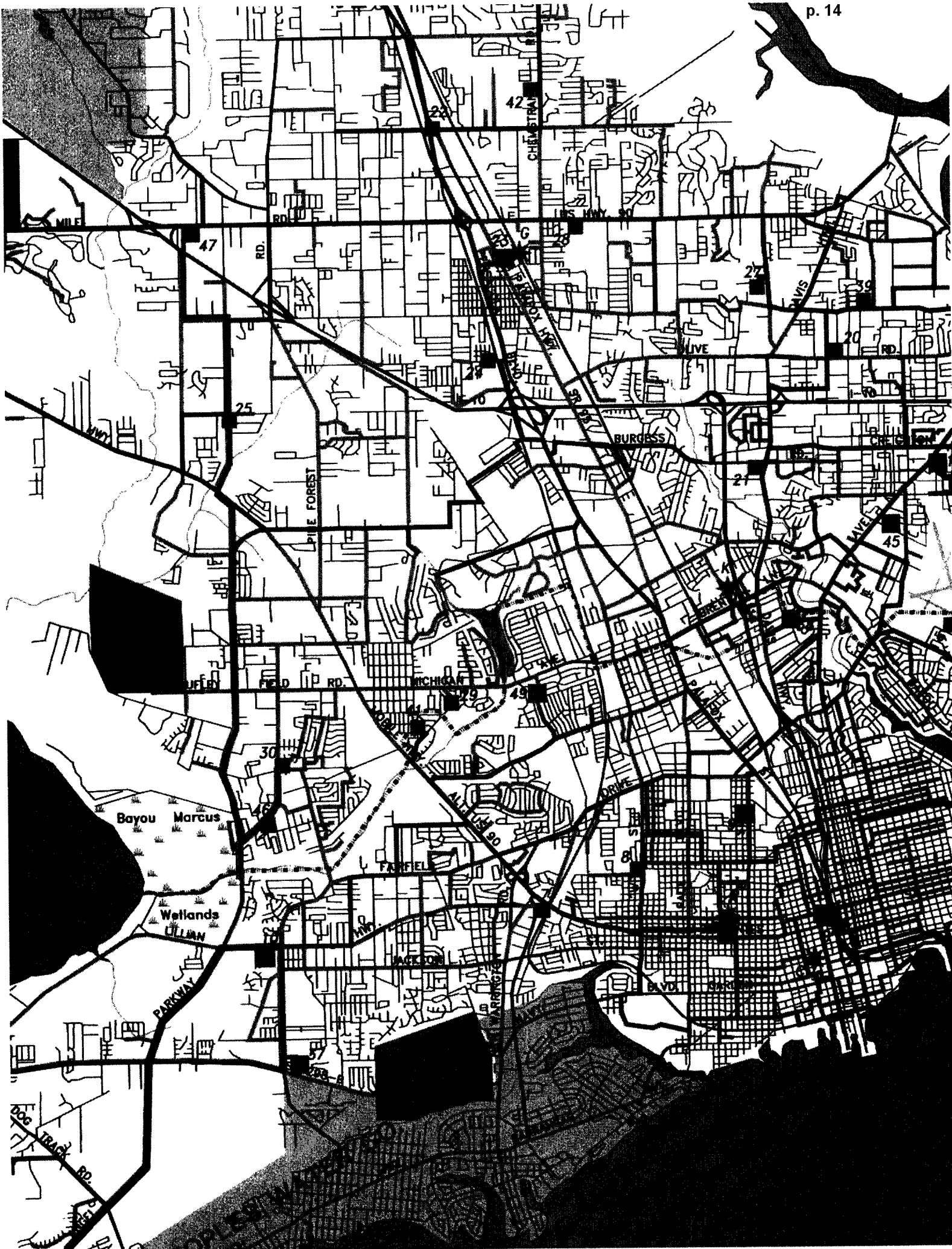
A

Appendix A

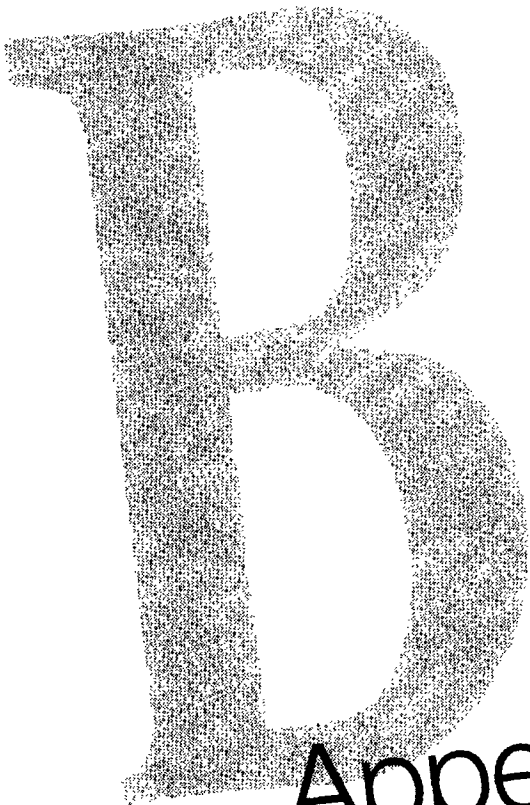
Baron & Budd, P.C.
Emerald Coast Utilities Authority –
Production Well Sampling
Escambia County, Florida

ECUA Production Well Location Map

Appendix A



Appendix B



Appendix
B

Baron & Budd, P.C.
Emerald Coast Utilities Authority –
Production Well Sampling
Escambia County, Florida

Sample Port Photograph Log

Appendix B

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida

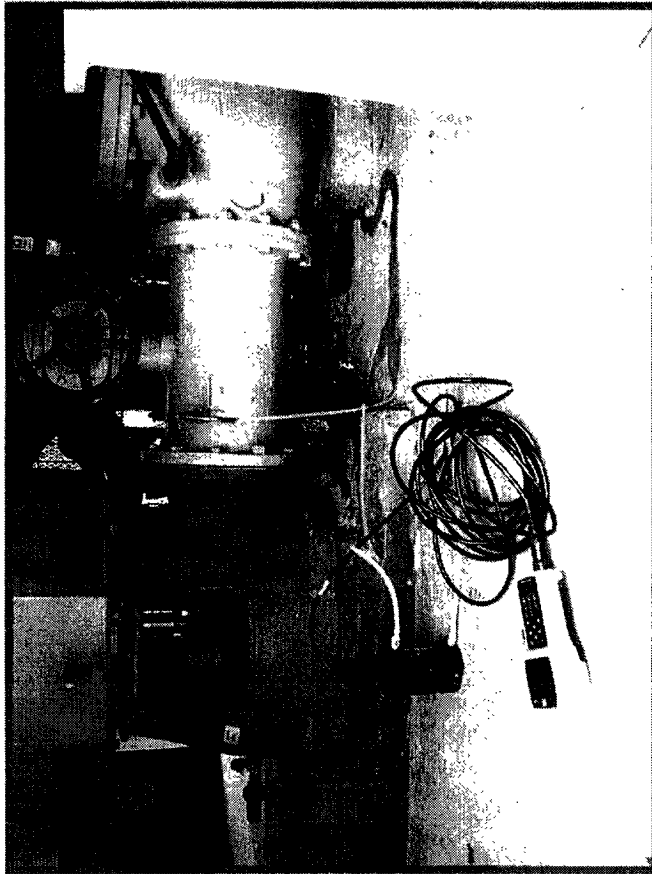


Ellyson-Raw Sampling Port

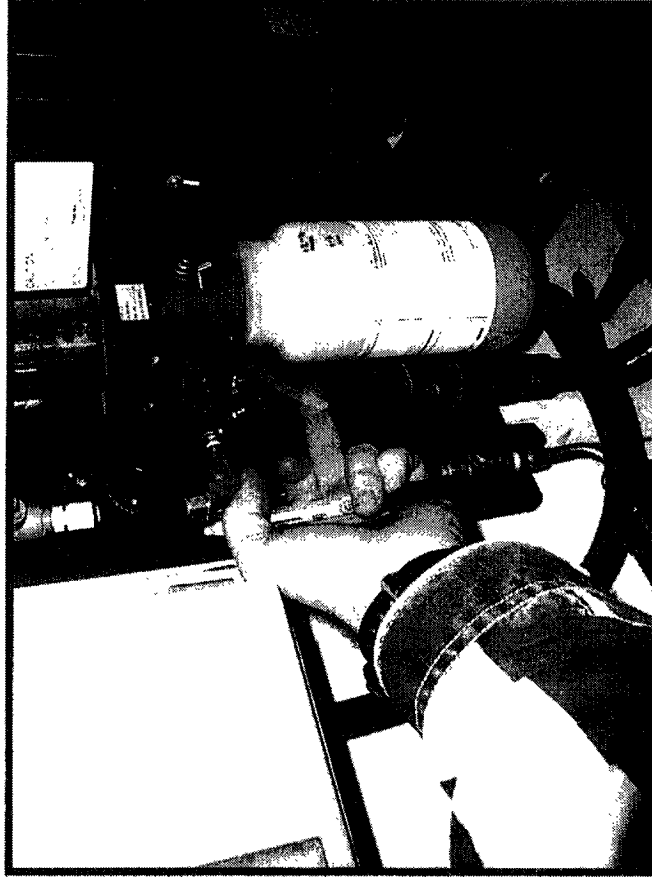


Ellyson-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida

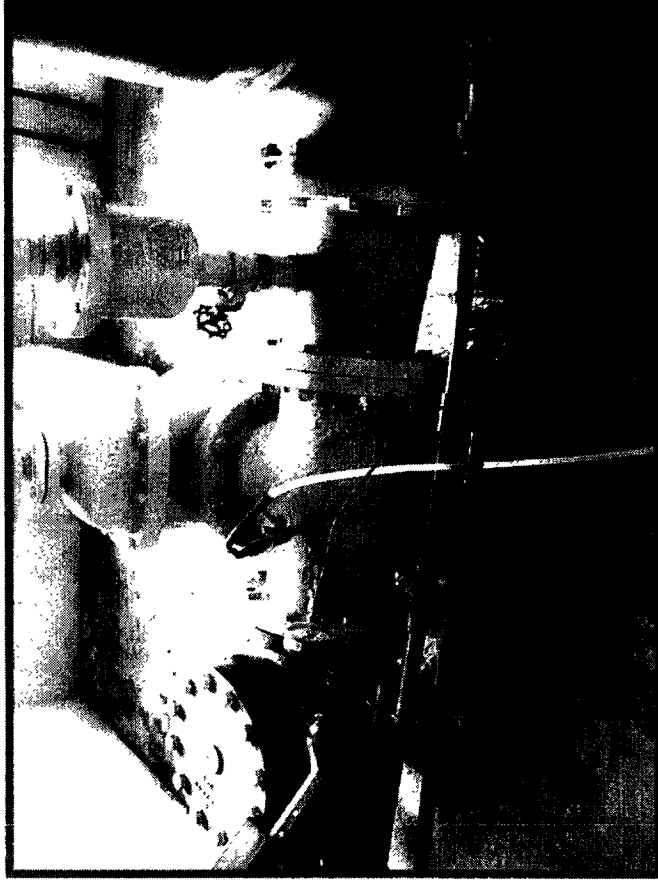


Davis-Raw Sampling Port

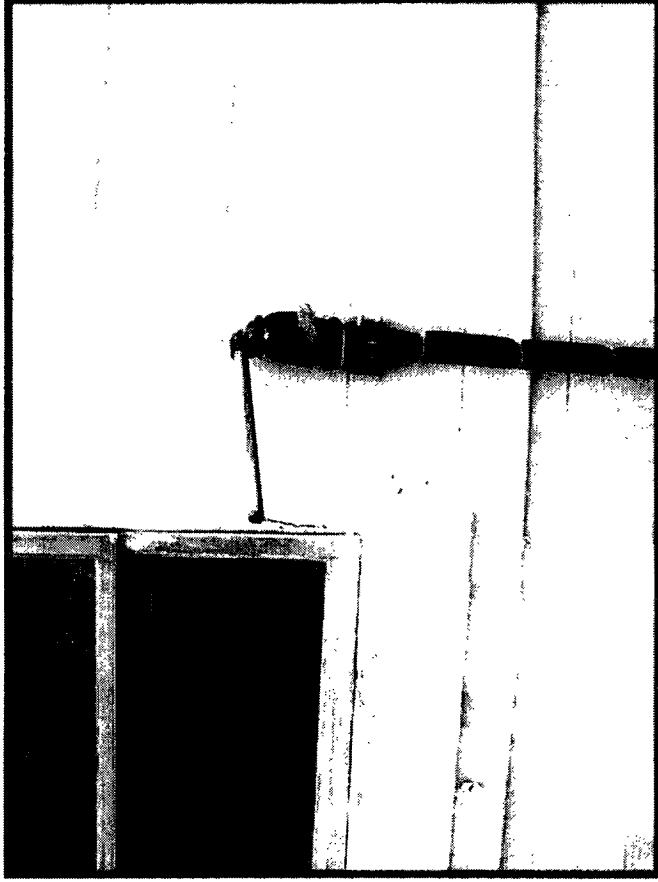


Davis-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida

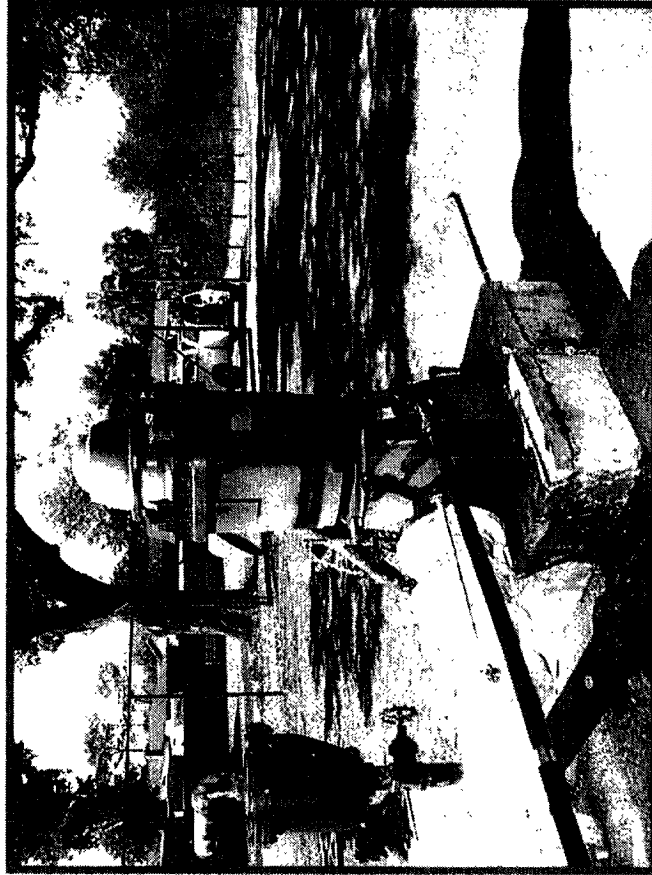


Olive-Raw Sampling Port

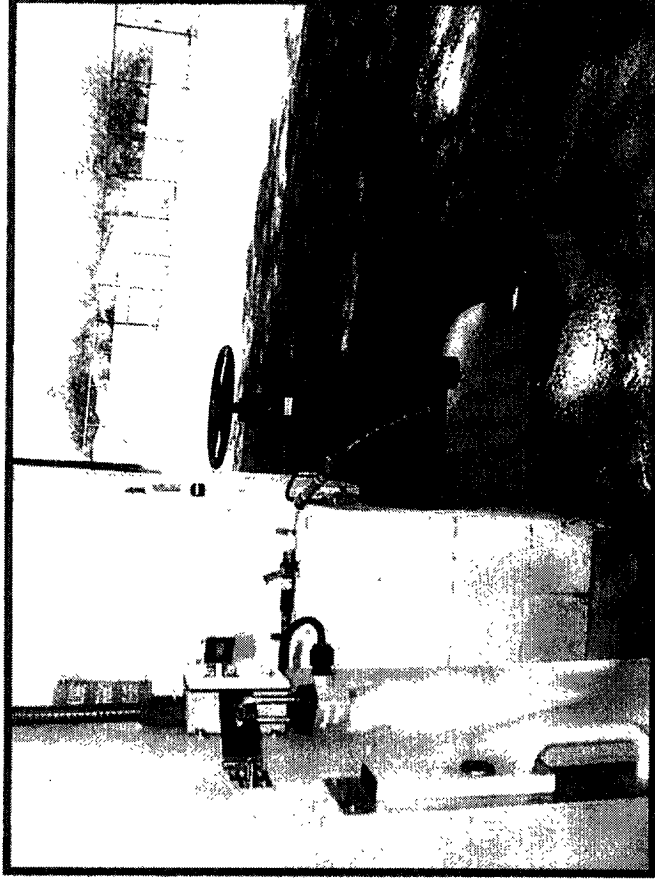


Olive-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida

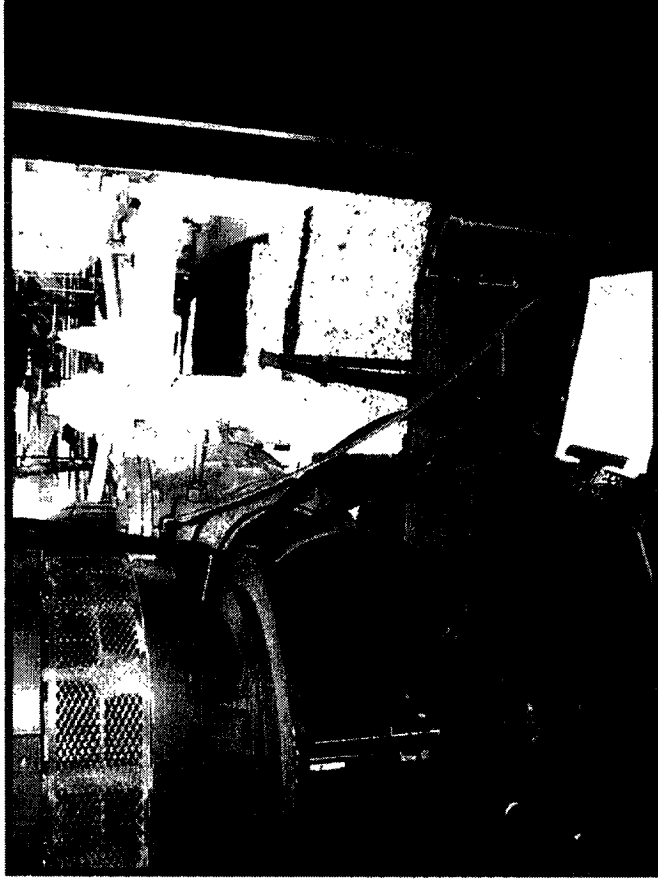


Carriage Hills-Raw Sampling Port

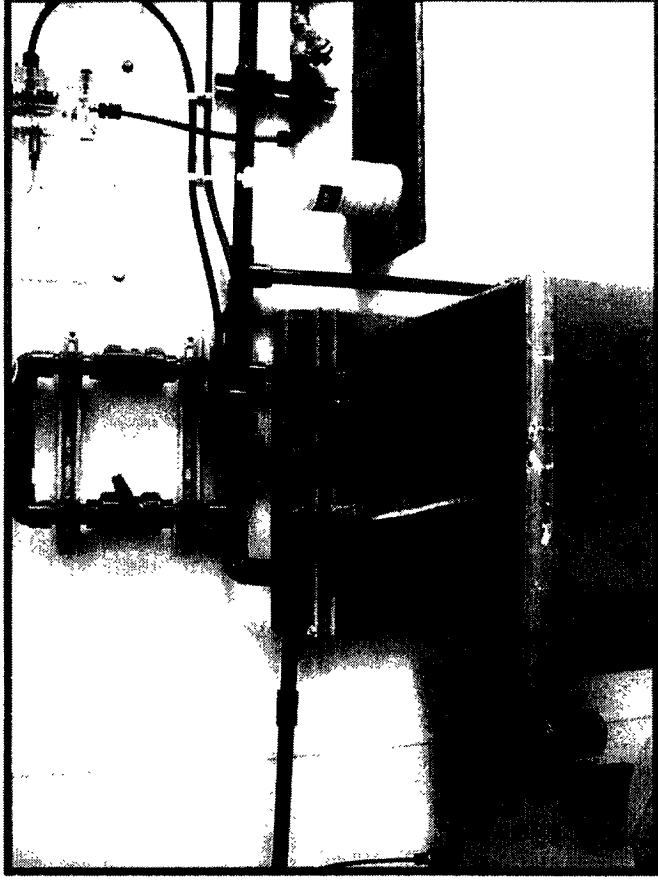


Carriage Hills-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida

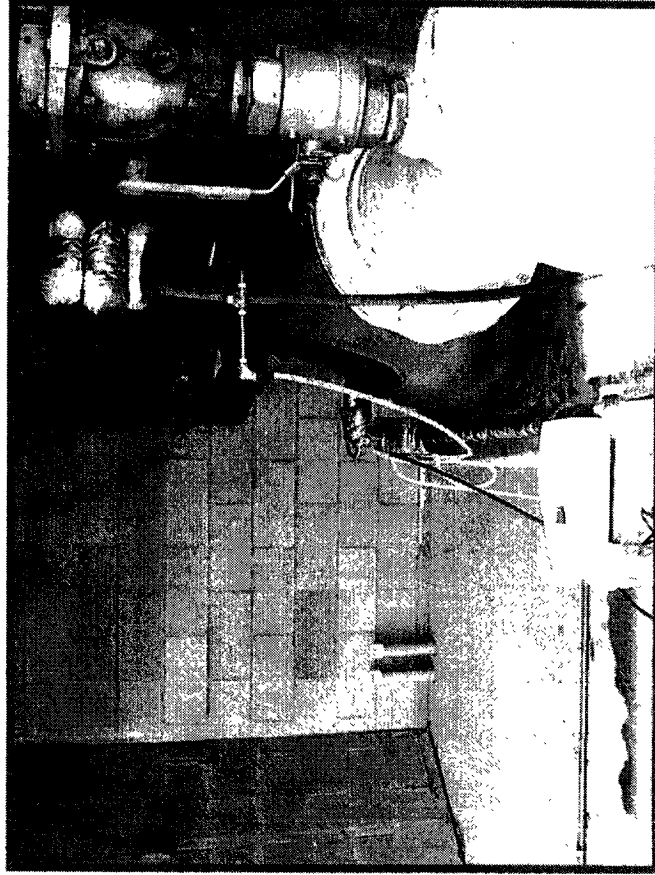


Watson-Raw Sampling Port

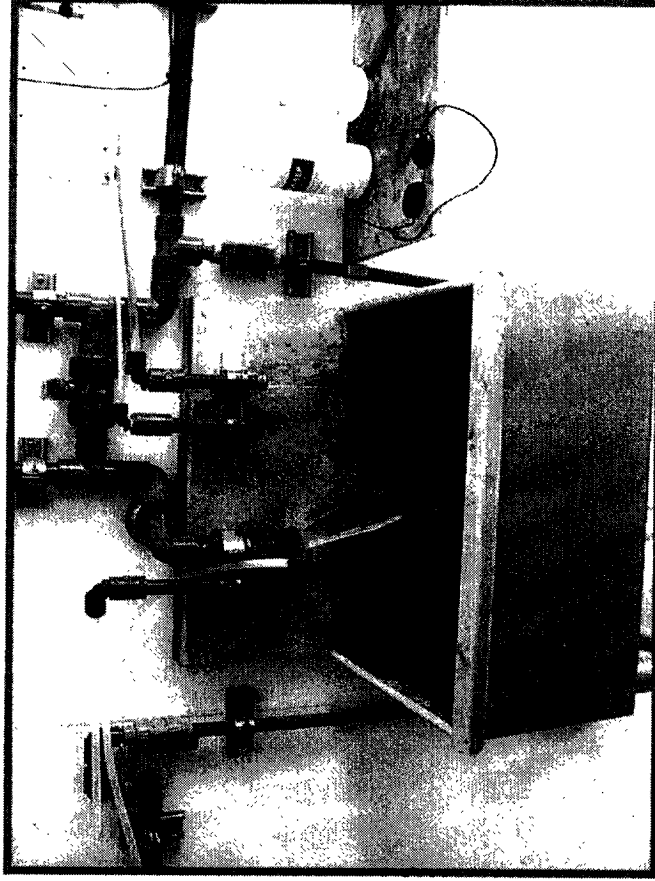


Watson-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida

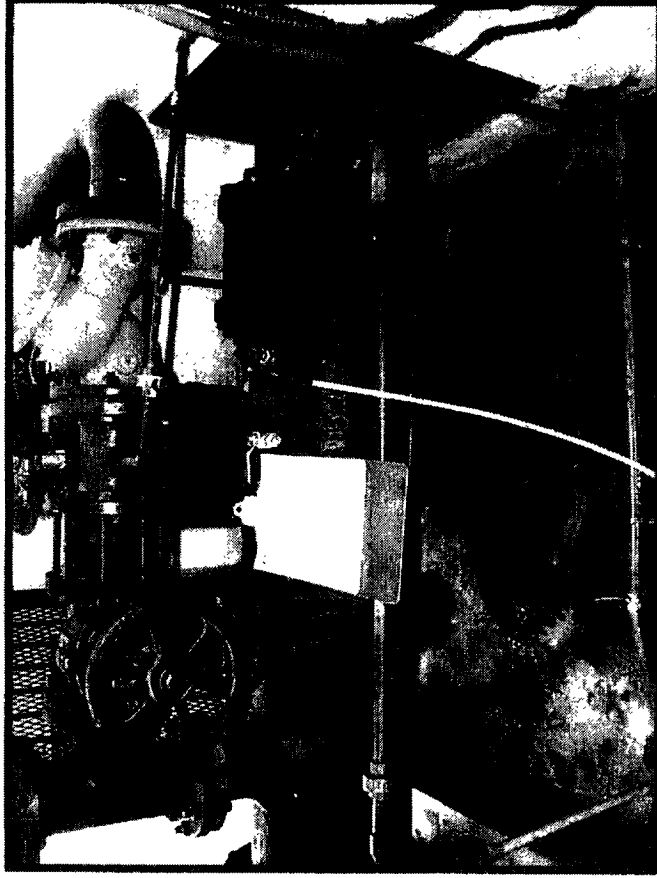


Kingsfield Road-Raw Sampling Port

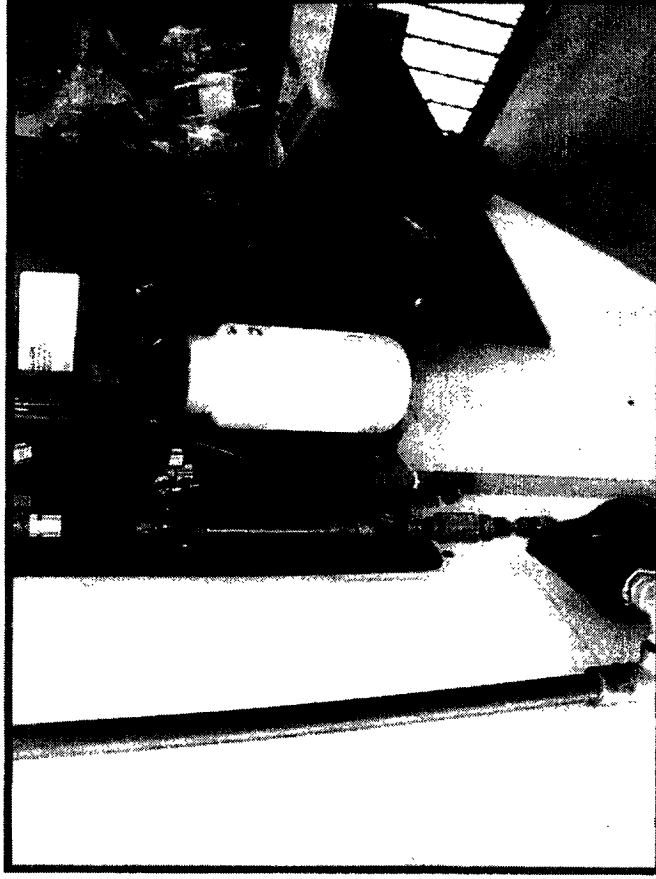


Kingsfield Road-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida



Cantonment-Raw Sampling Port

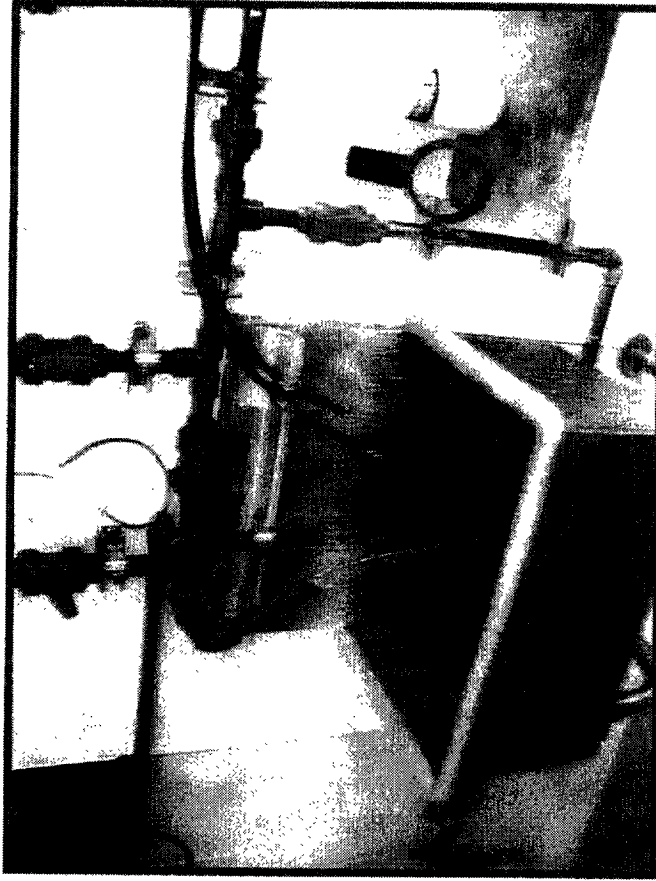


Cantonment-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 1, 2010
Escambia County, Florida

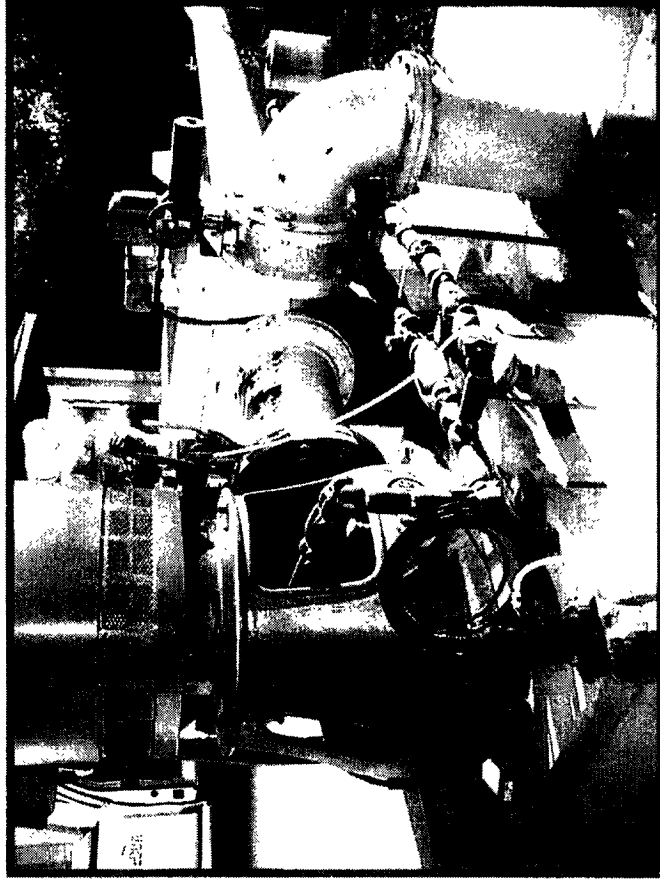


Nine Mile Road-Raw Sampling Port

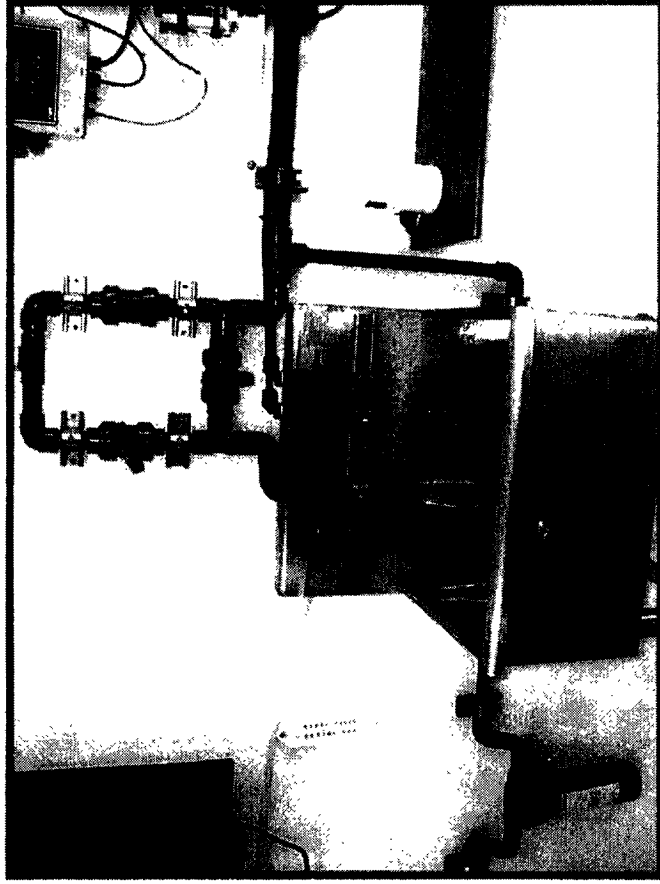


Nine Mile Road-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

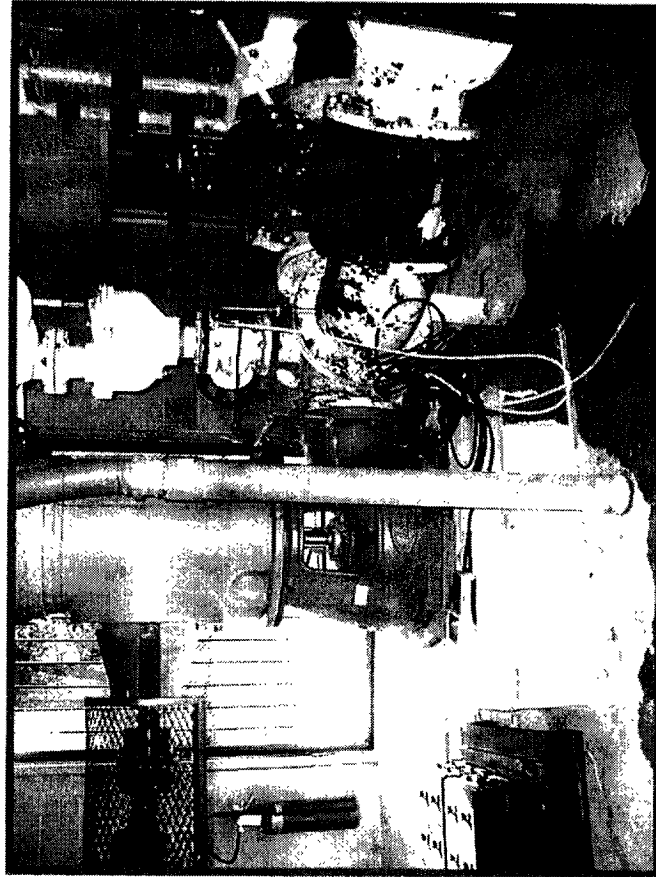


University Parkway-Raw Sampling Port

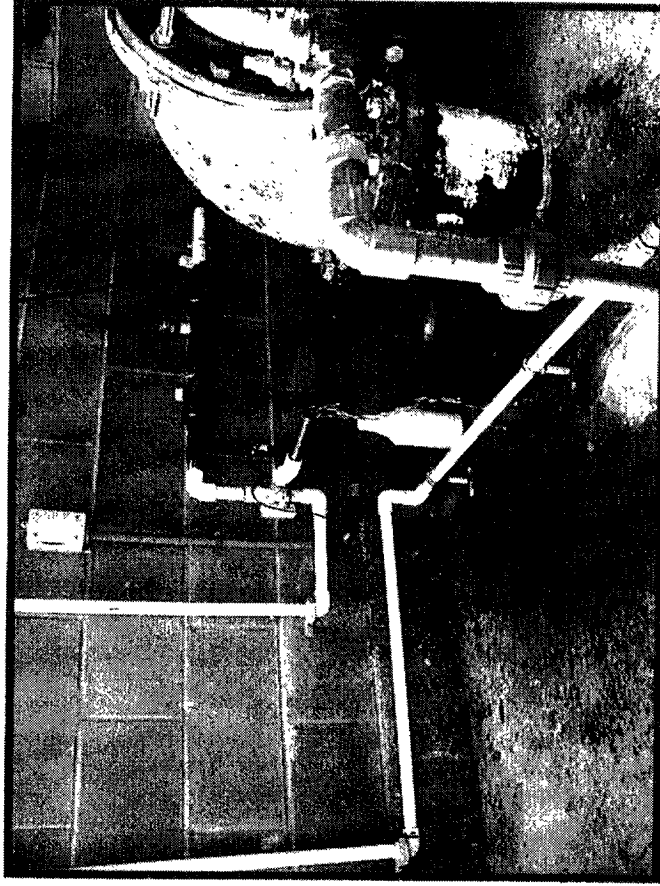


University Parkway-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida



McCory-Raw Sampling Port

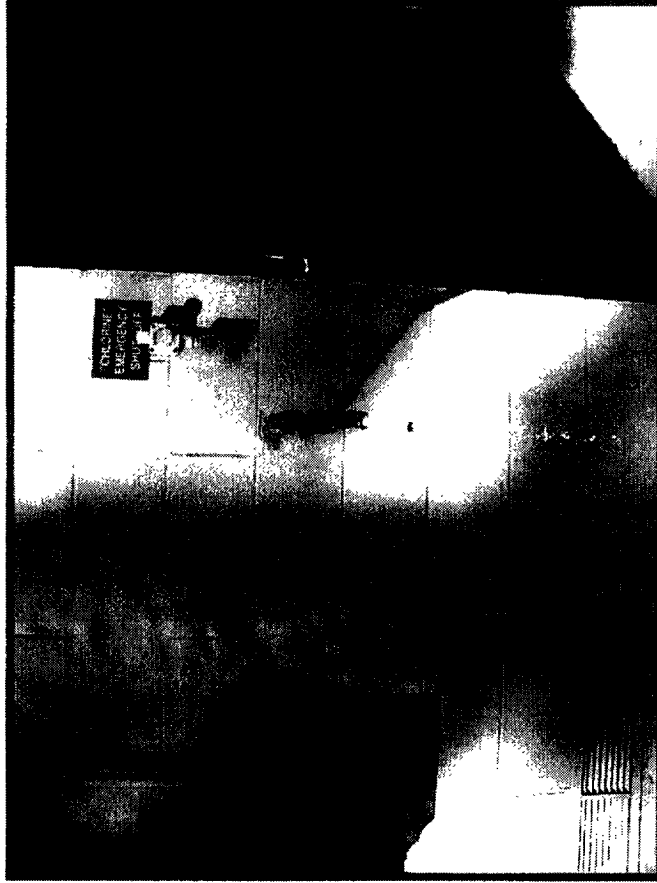


McCory-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

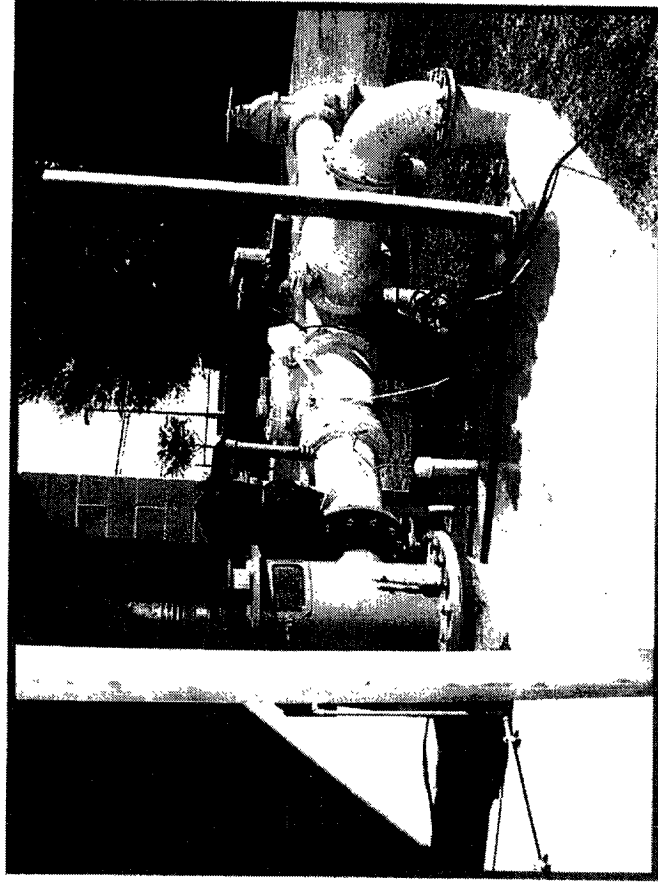


Dunaway-Raw Sampling Port

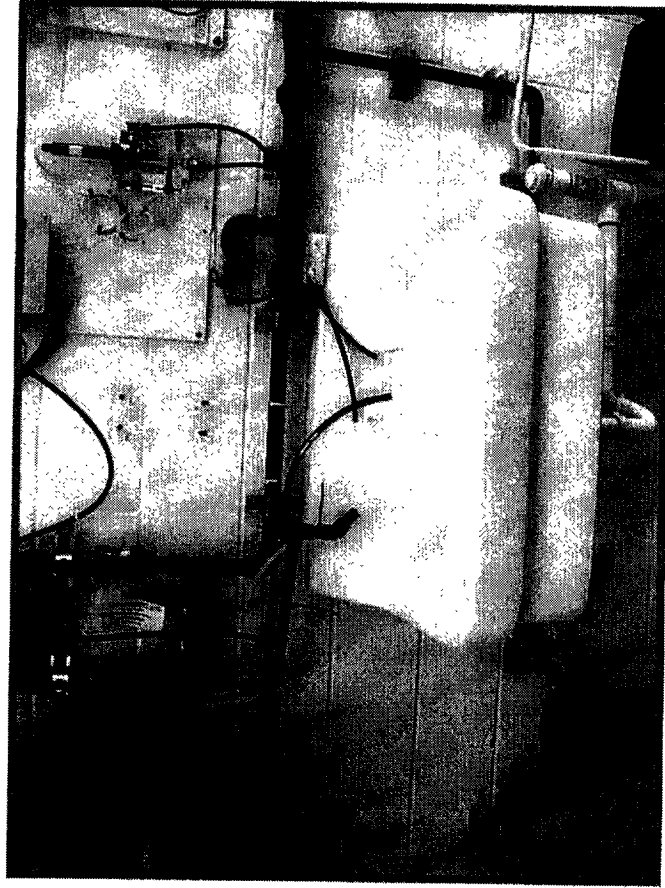


Dunaway-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida



Lillian-Raw Sampling Port

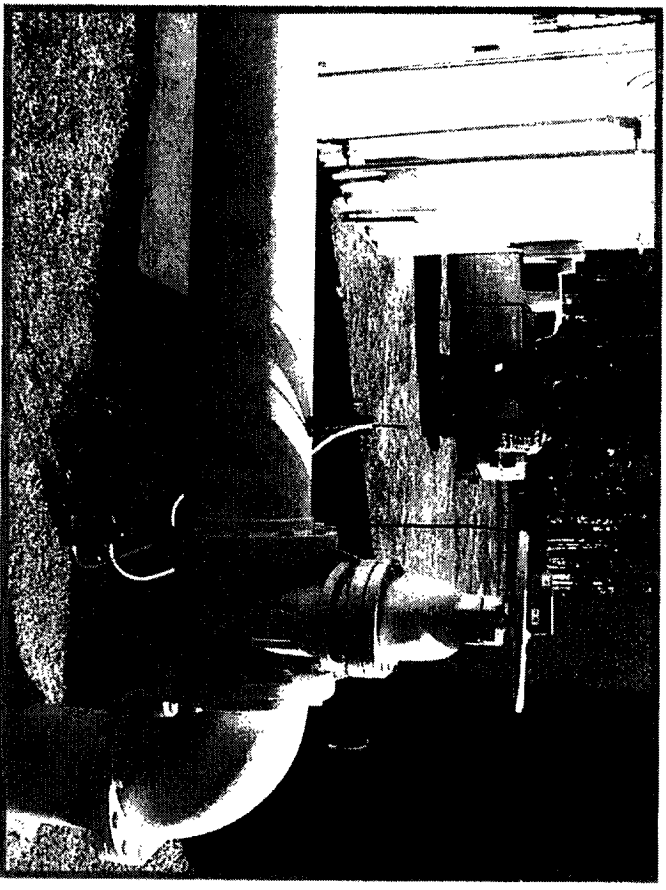


Lillian-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

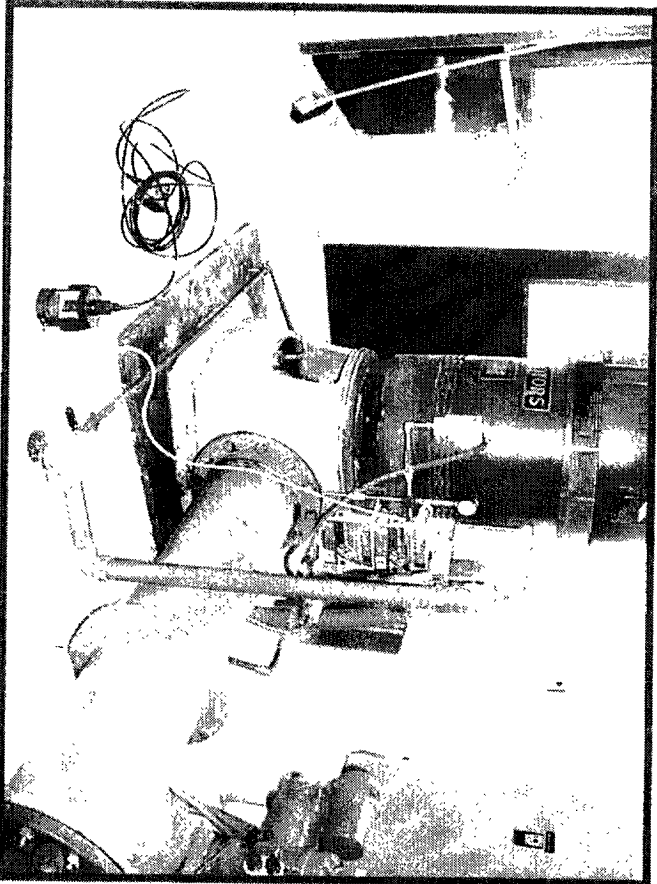


Bronson-Raw Sampling Port

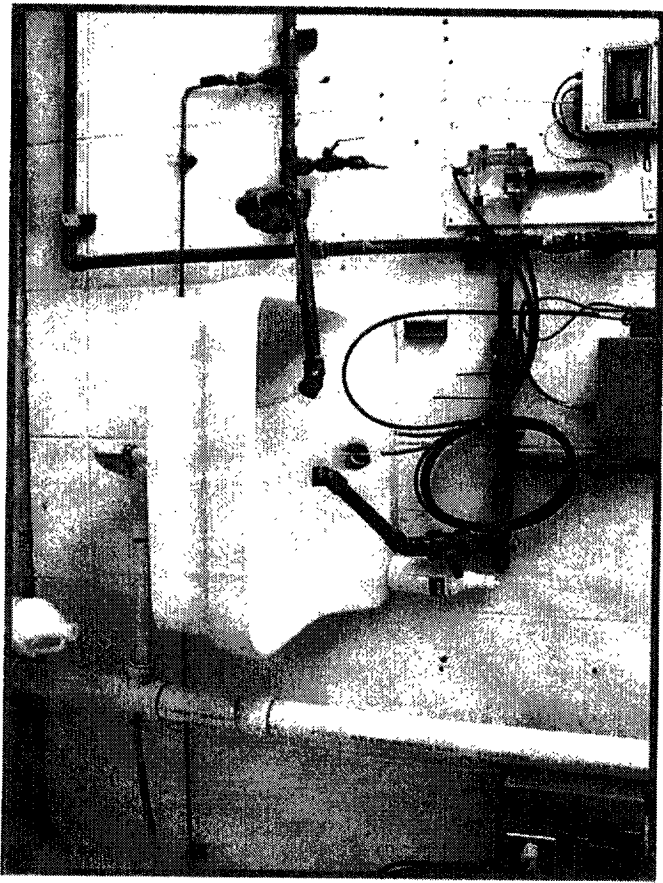


Bronson-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

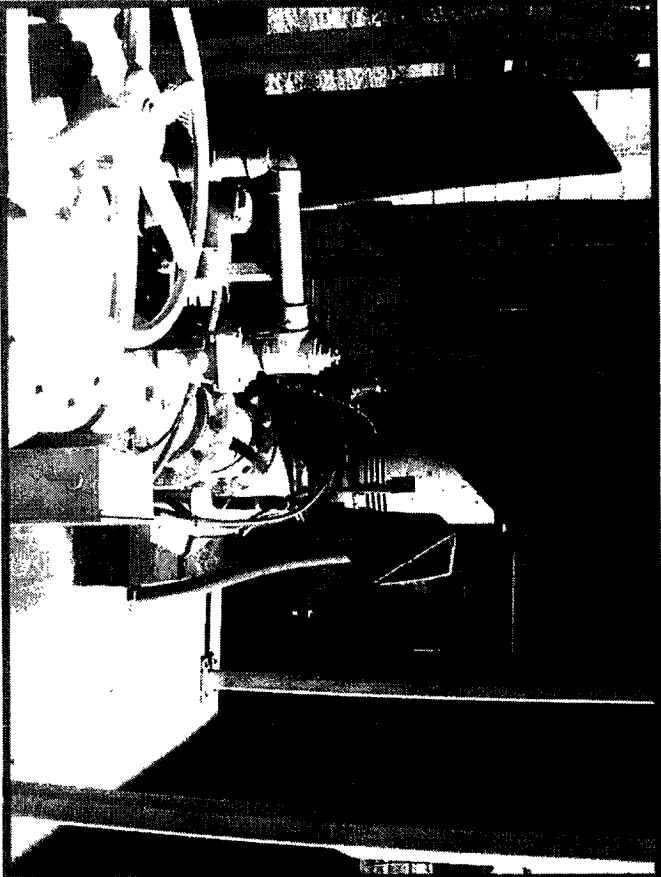


West Pensacola-Raw Sampling Port

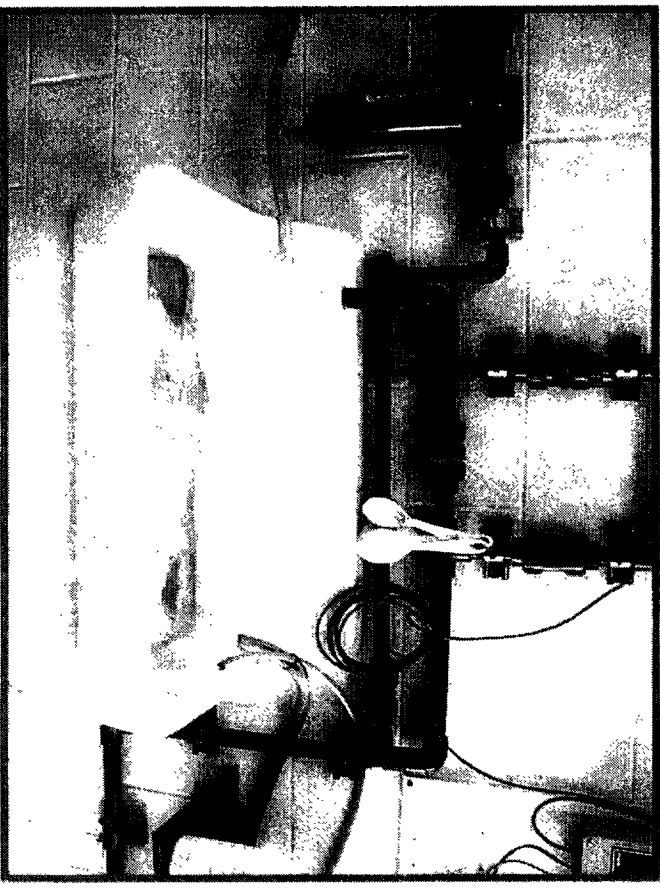


West Pensacola-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

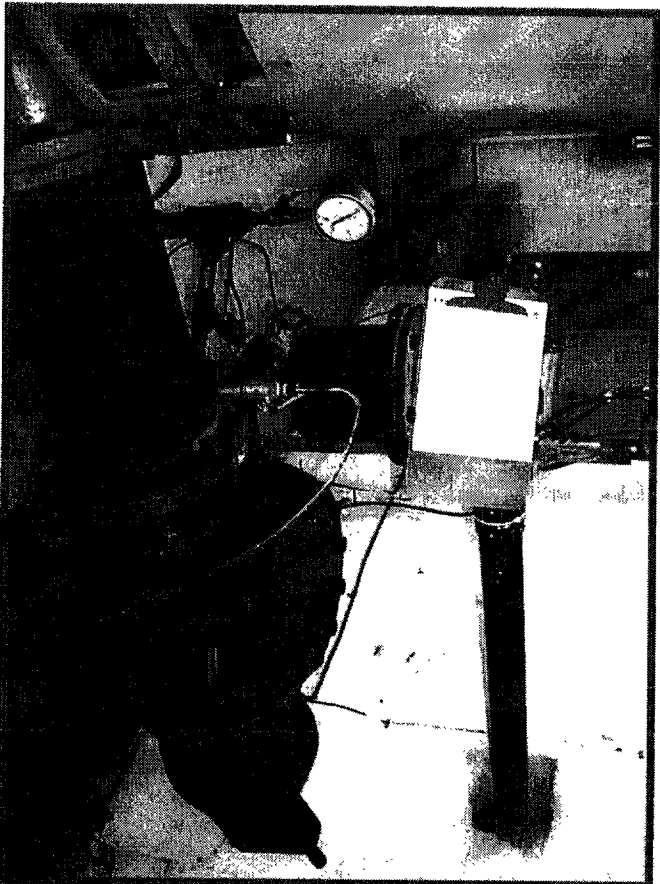


“W” & Avery-Raw Sampling Port



“W” & Avery-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

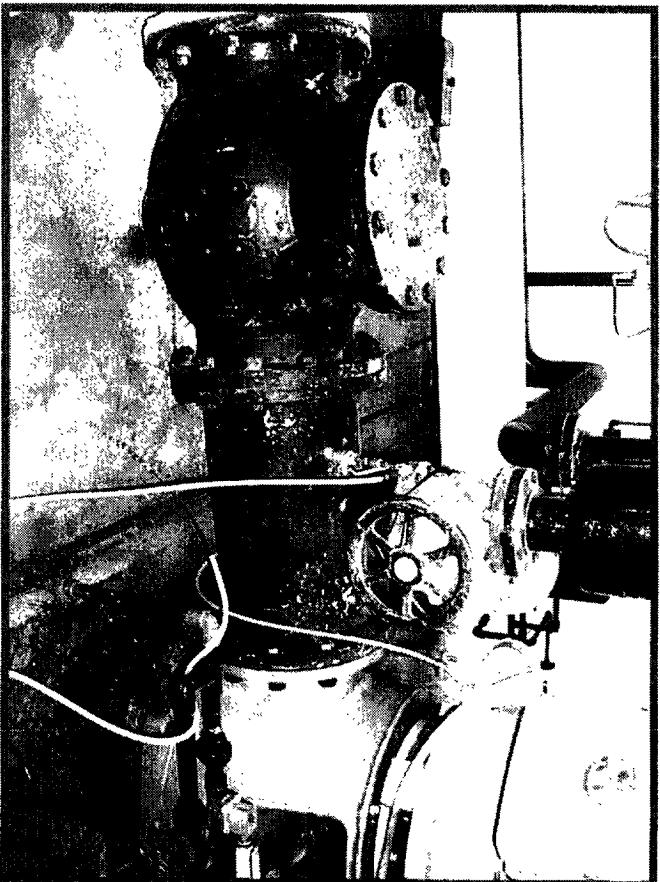


West Well Plant-Raw Sampling Port



West Well Plant-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

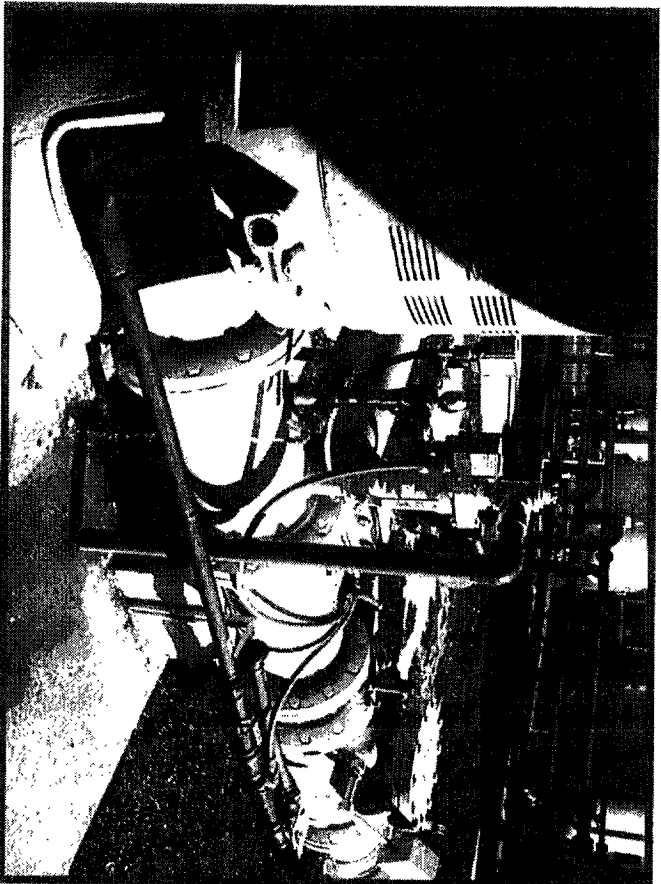


“F” & Scott-Raw Sampling Port

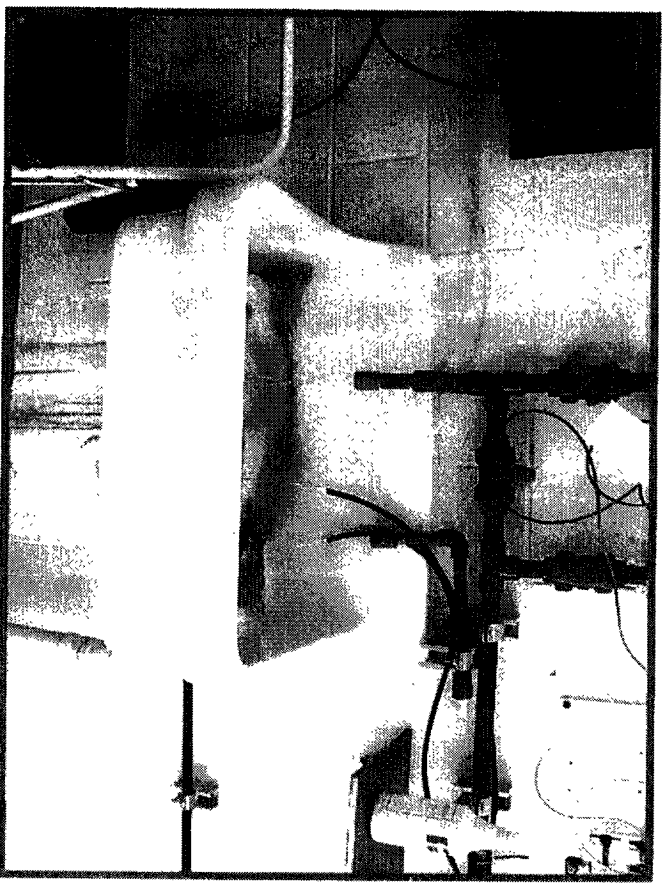


“F” & Scott-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 2, 2010
Escambia County, Florida

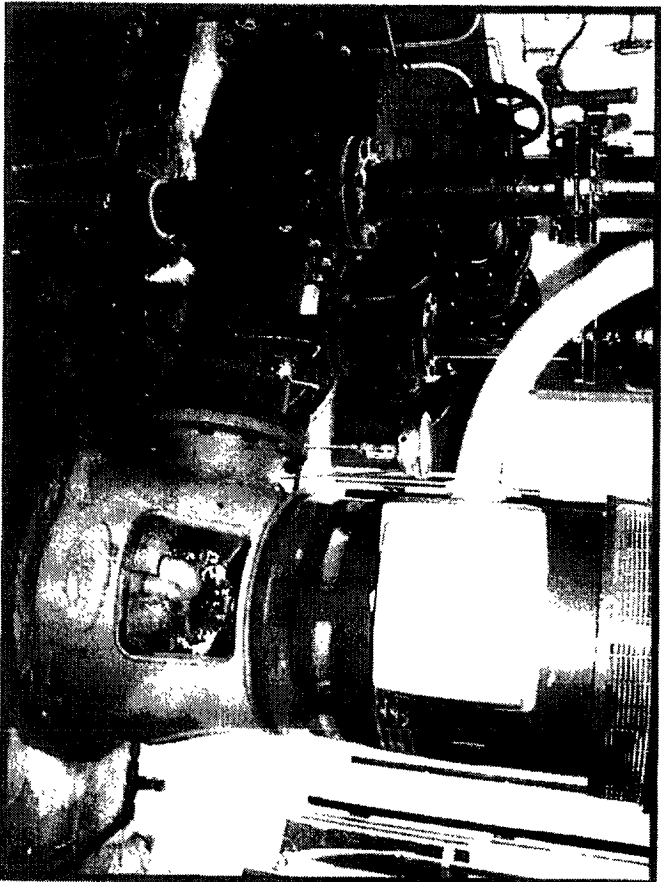


No. 6 Well Plant-Raw Sampling Port

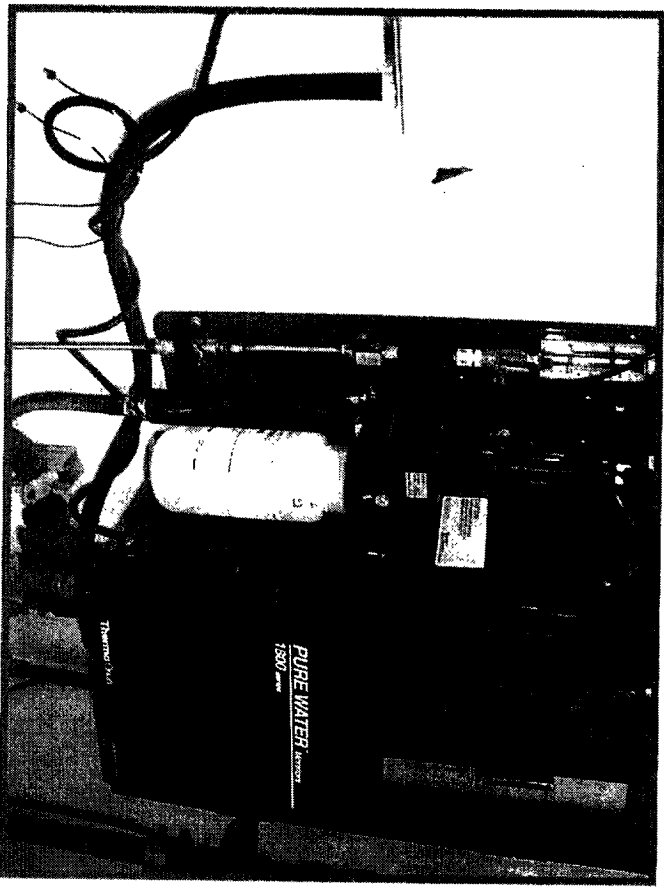


No. 6 Well Plant-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

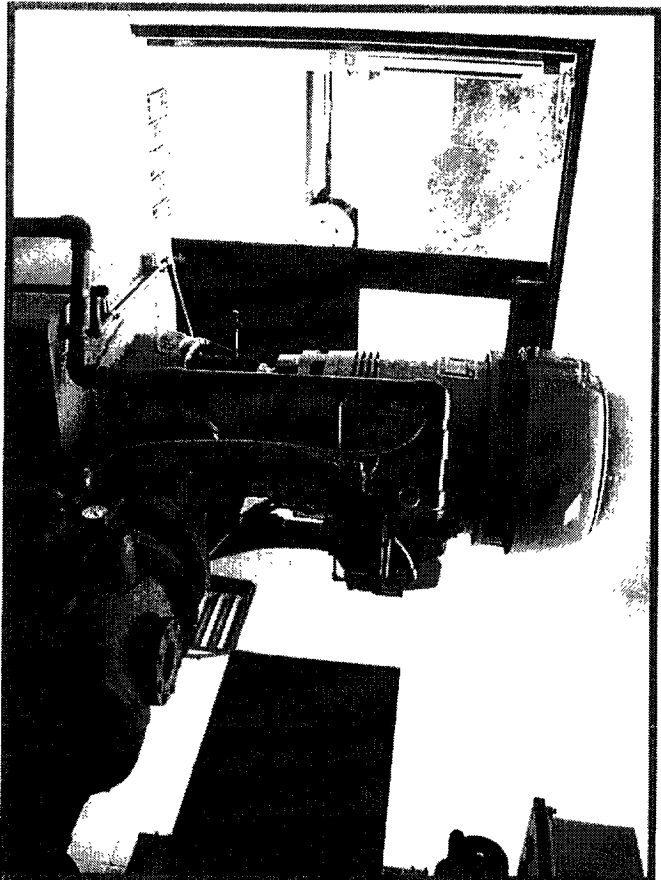


Hagler Well Plant-Raw Sampling Port

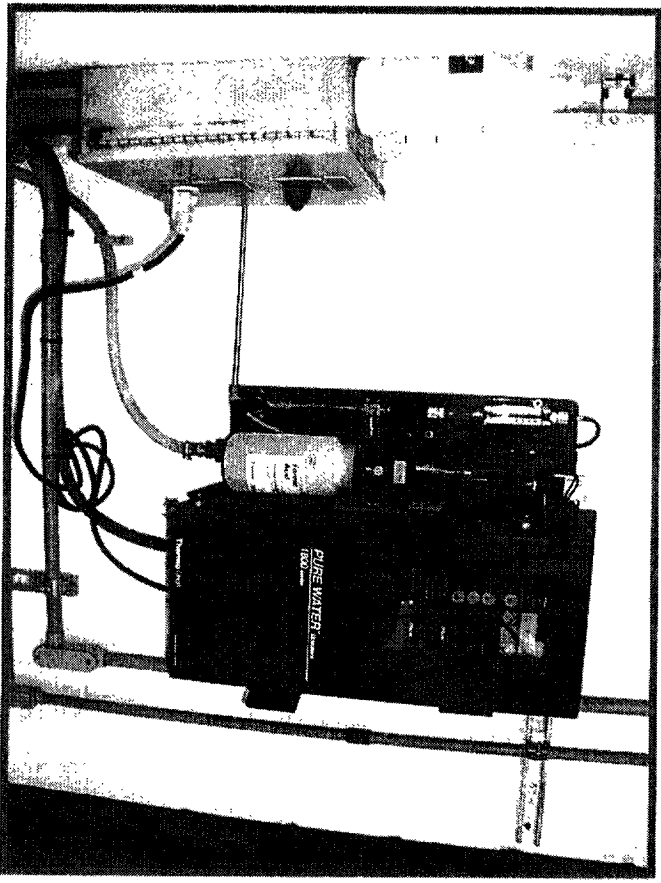


Hagler Well Plant-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

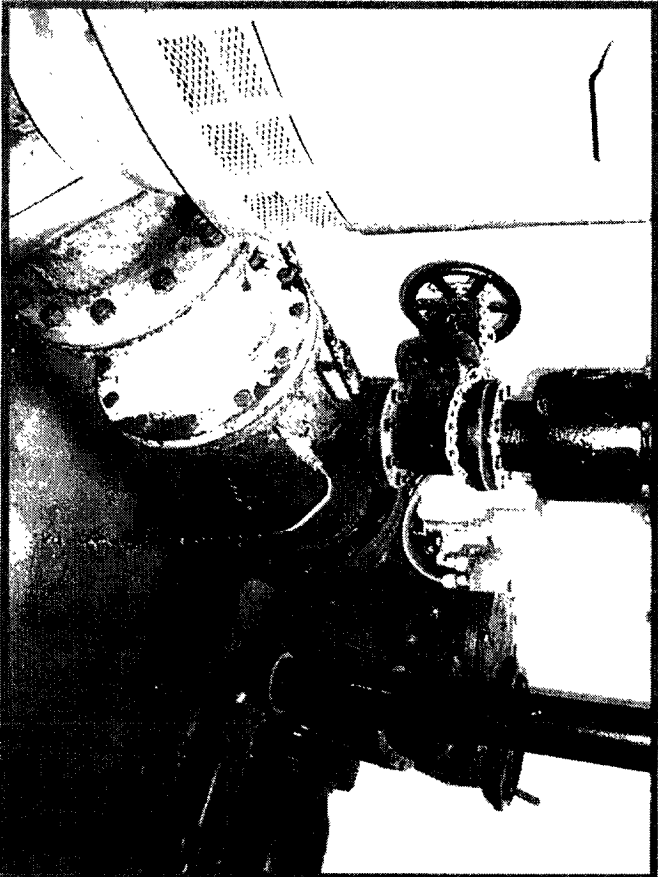


Spanish Trail-Raw Sampling Port

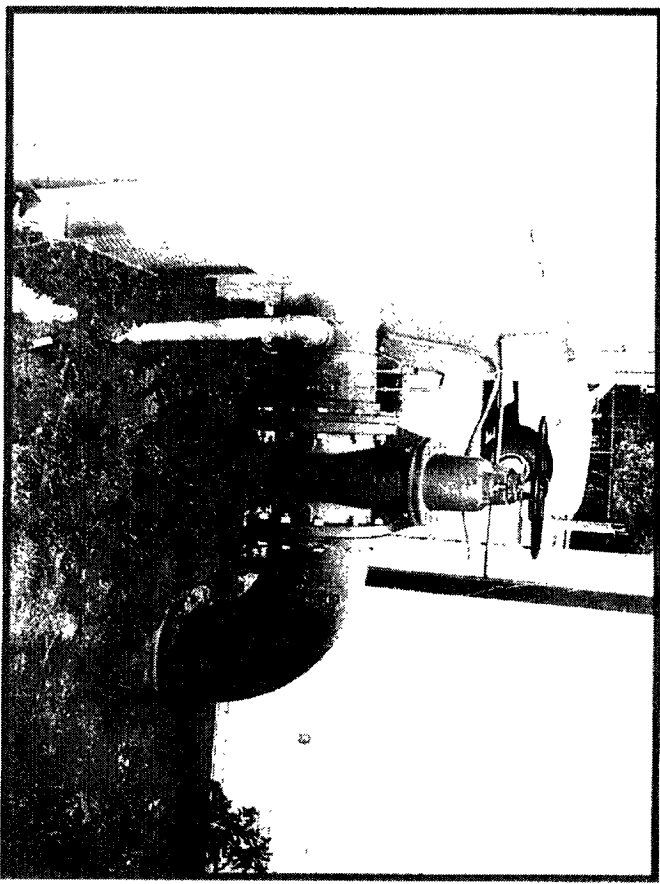


Spanish Trail-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

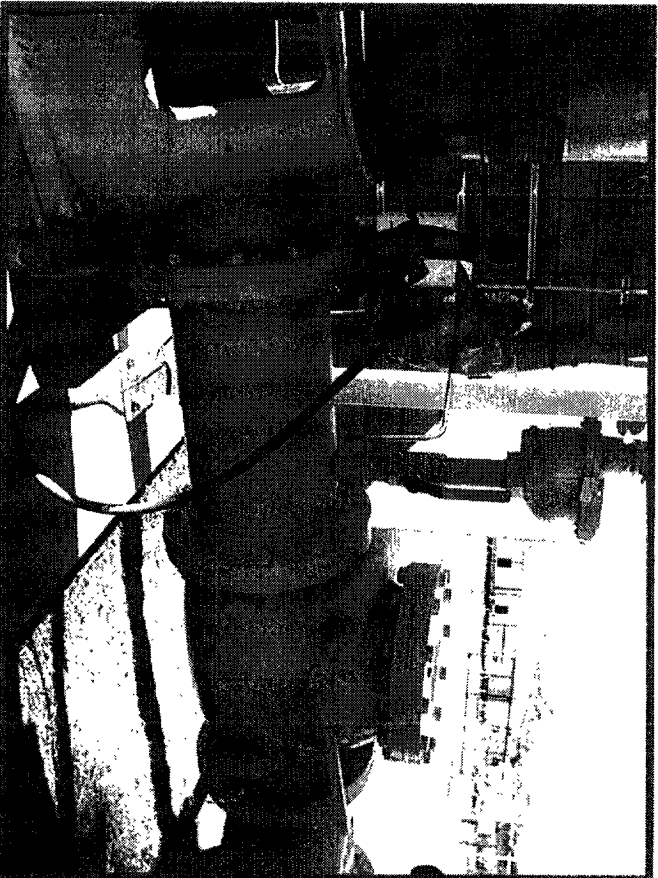


Airport North-Raw Sampling Port

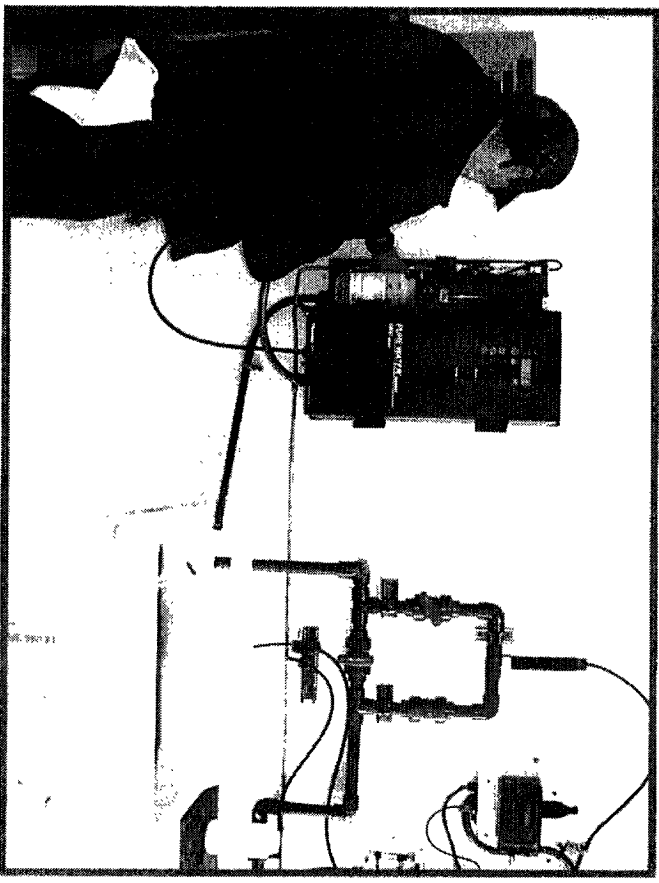


Airport North-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

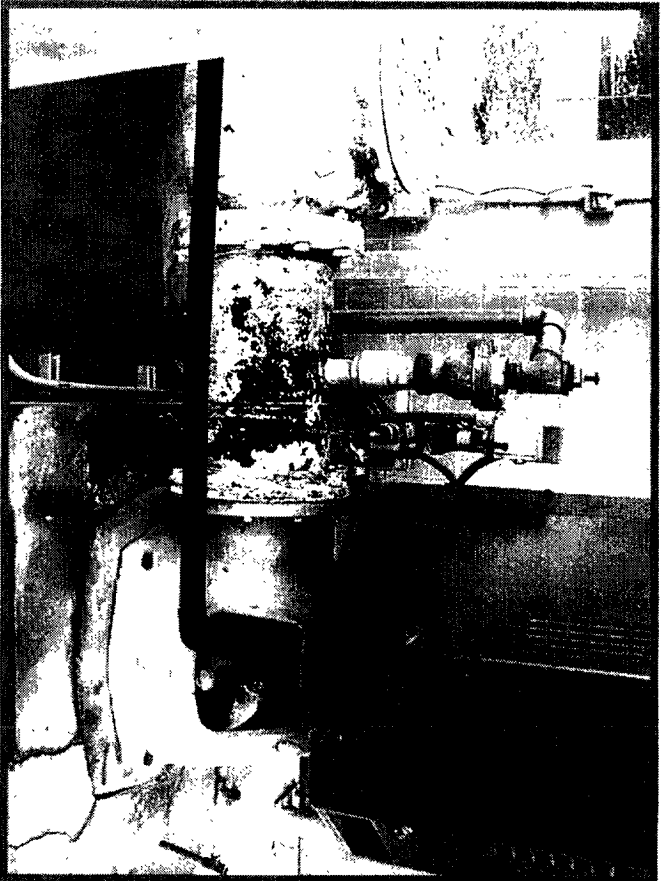


McAllister-Raw Sampling Port

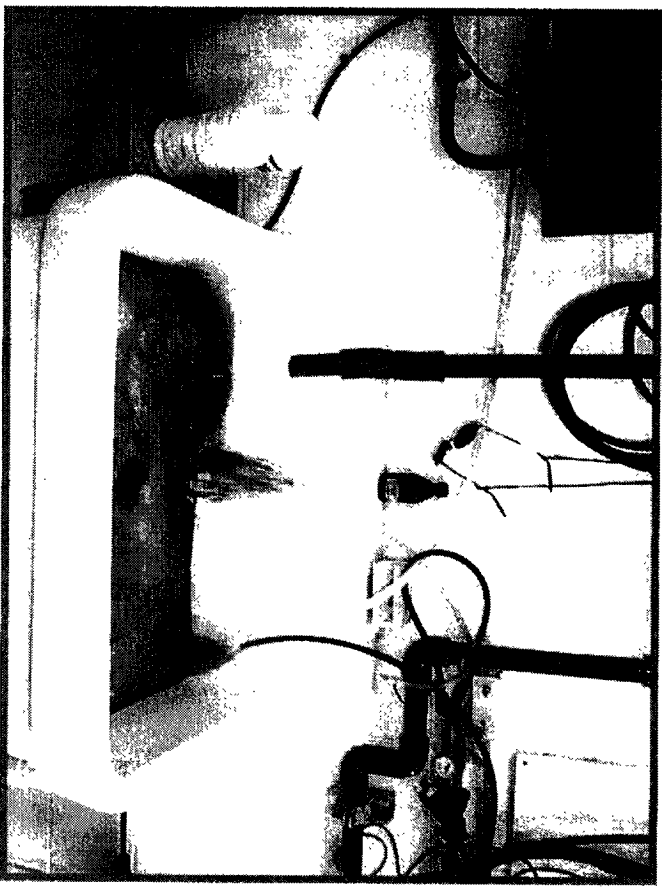


McAllister-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

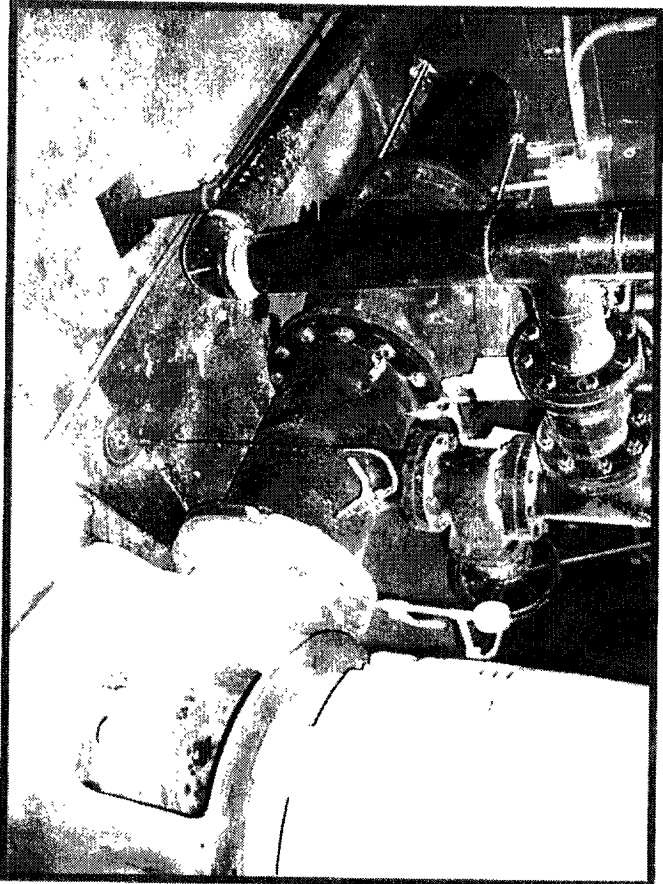


Humphrey's-Raw Sampling Port



Humphrey's-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

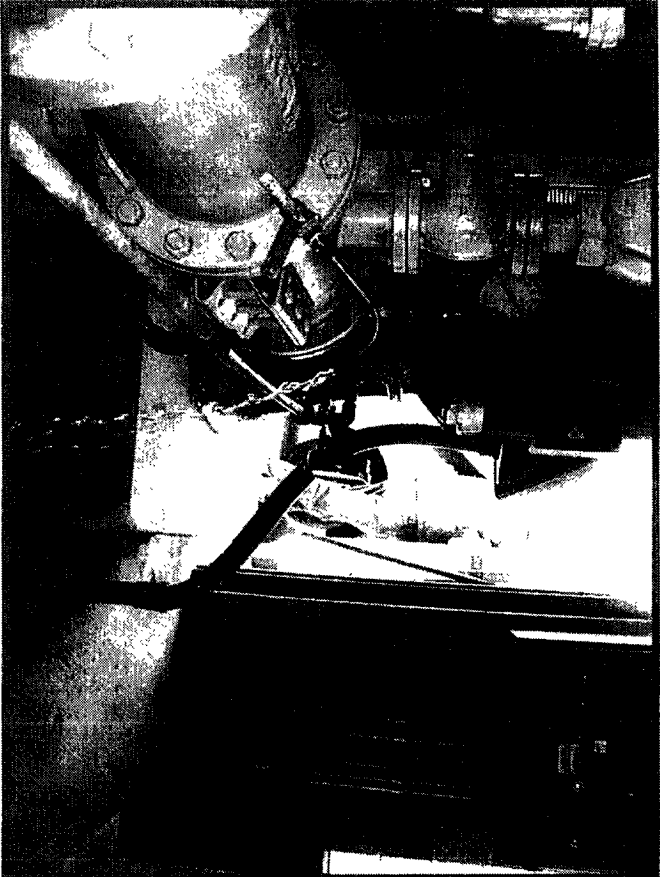


Broad Street-Raw Sampling Port

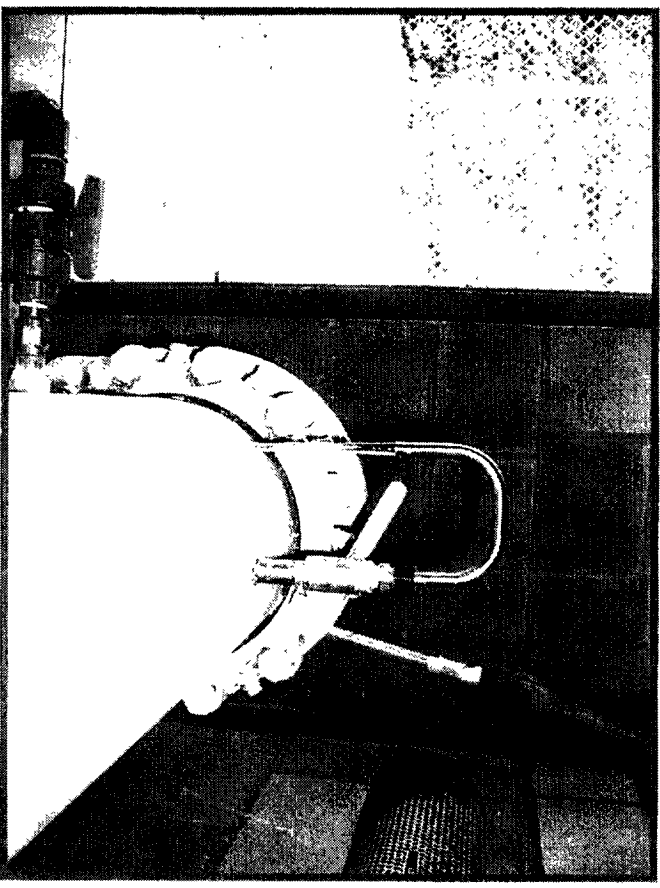


Broad Street-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

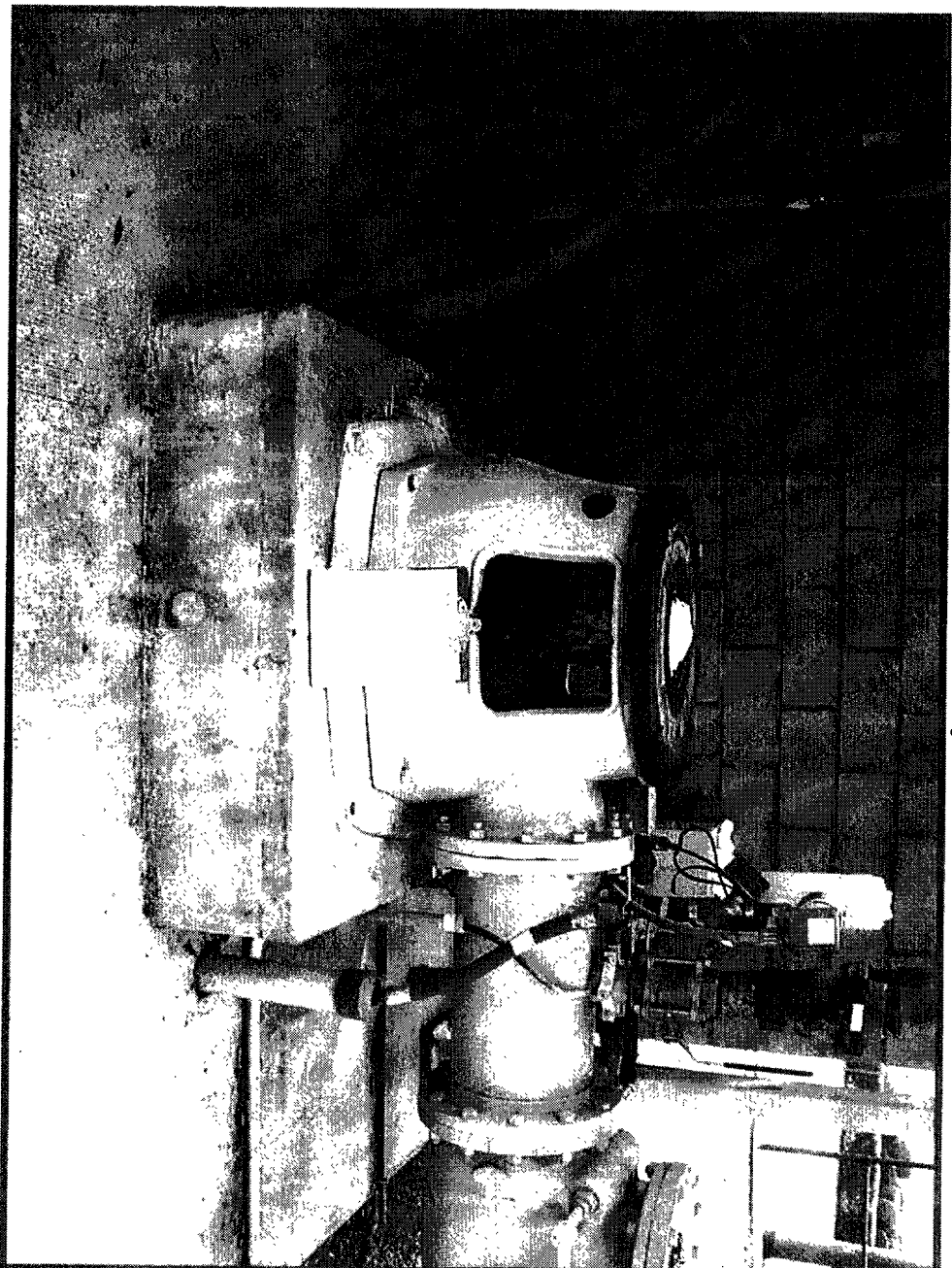


Tenant-Raw Sampling Port



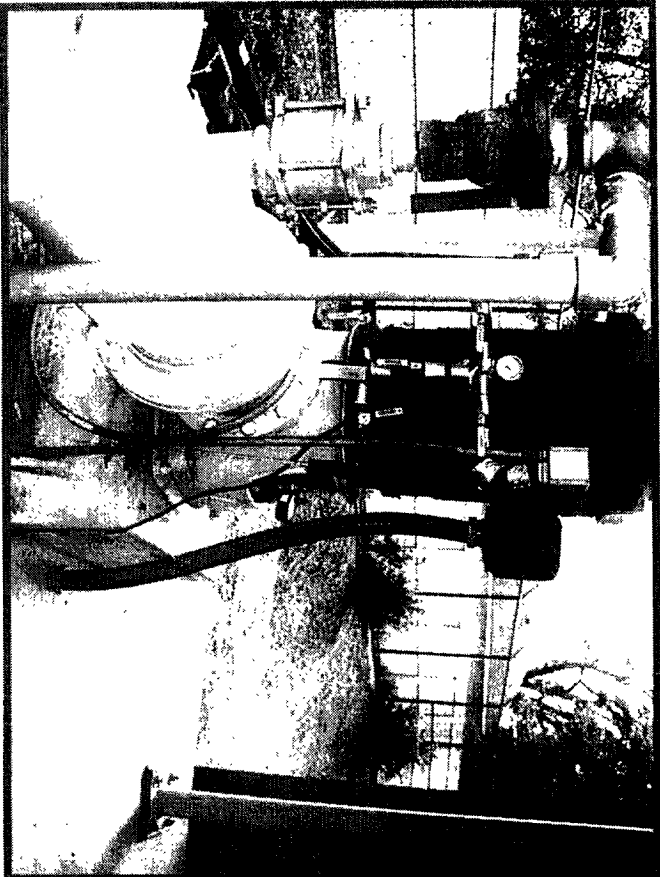
Tenant-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

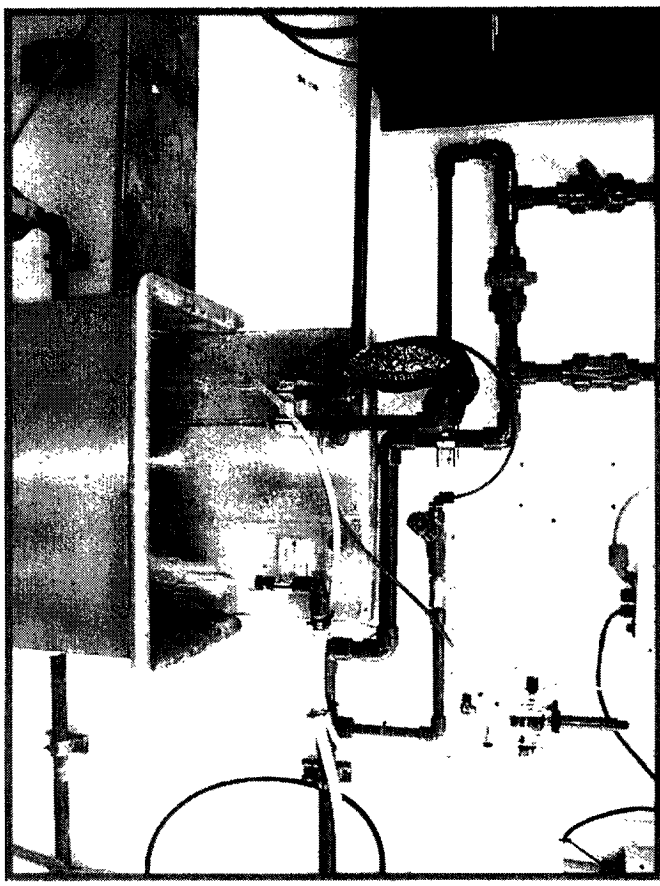


Avondale-Temporarily Inactive

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

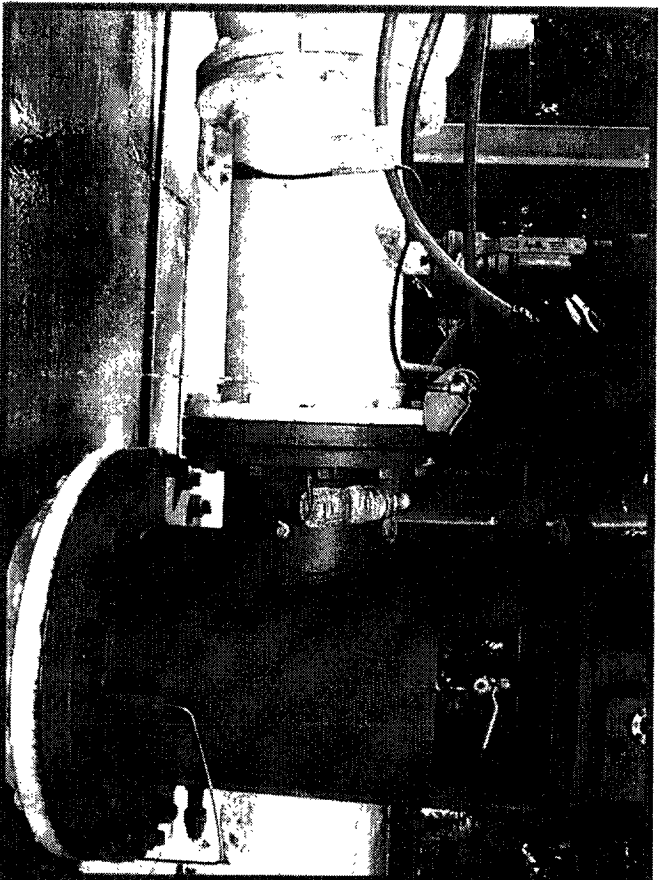


Muldoon-Raw Sampling Port

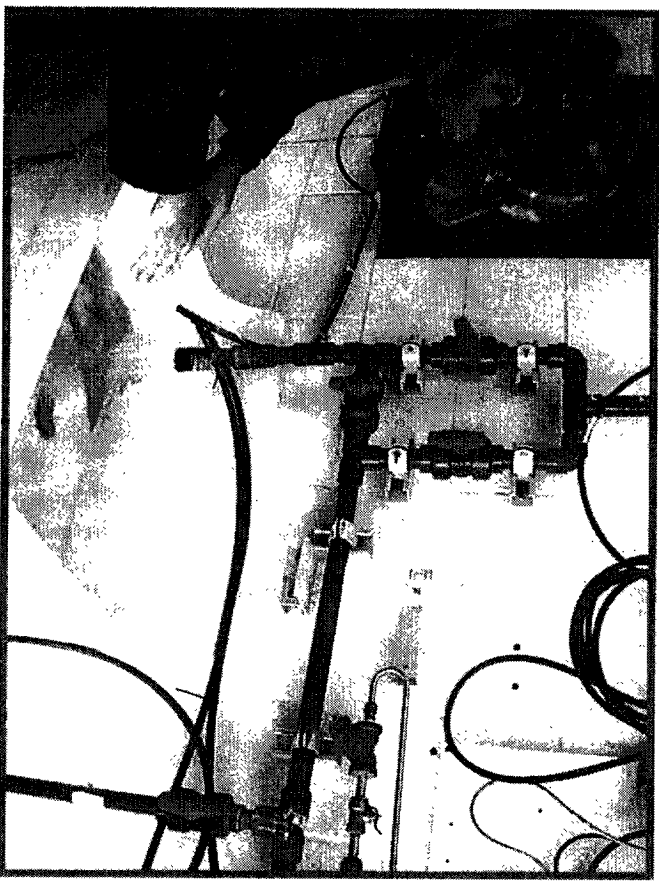


Muldoon-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

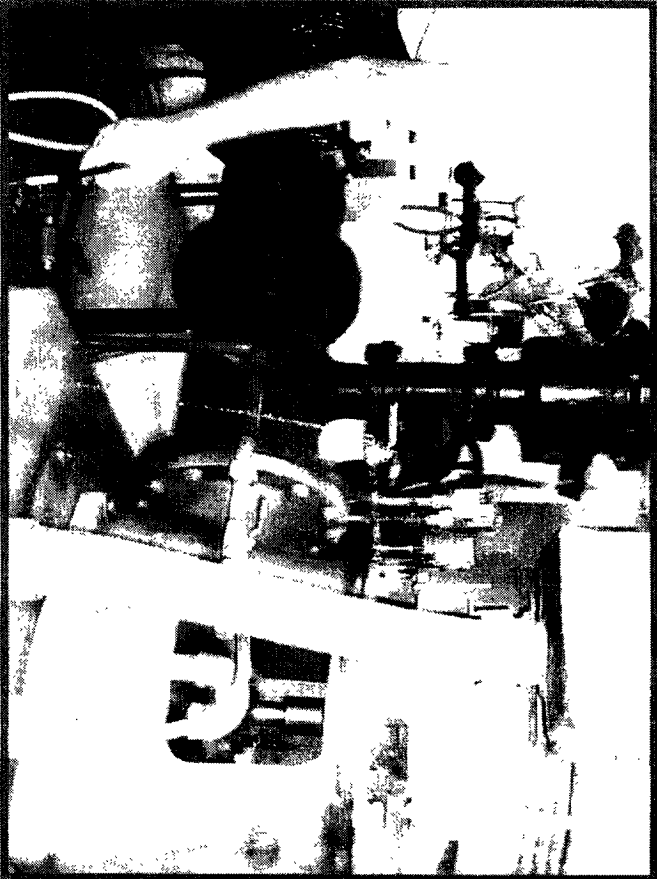


Villa Drive-Raw Sampling Port

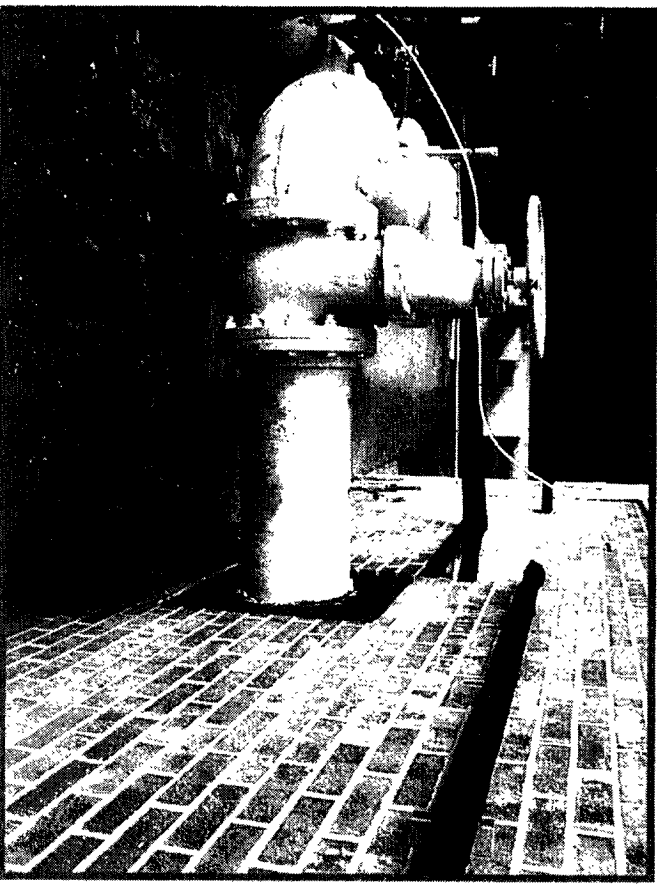


Villa Drive-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

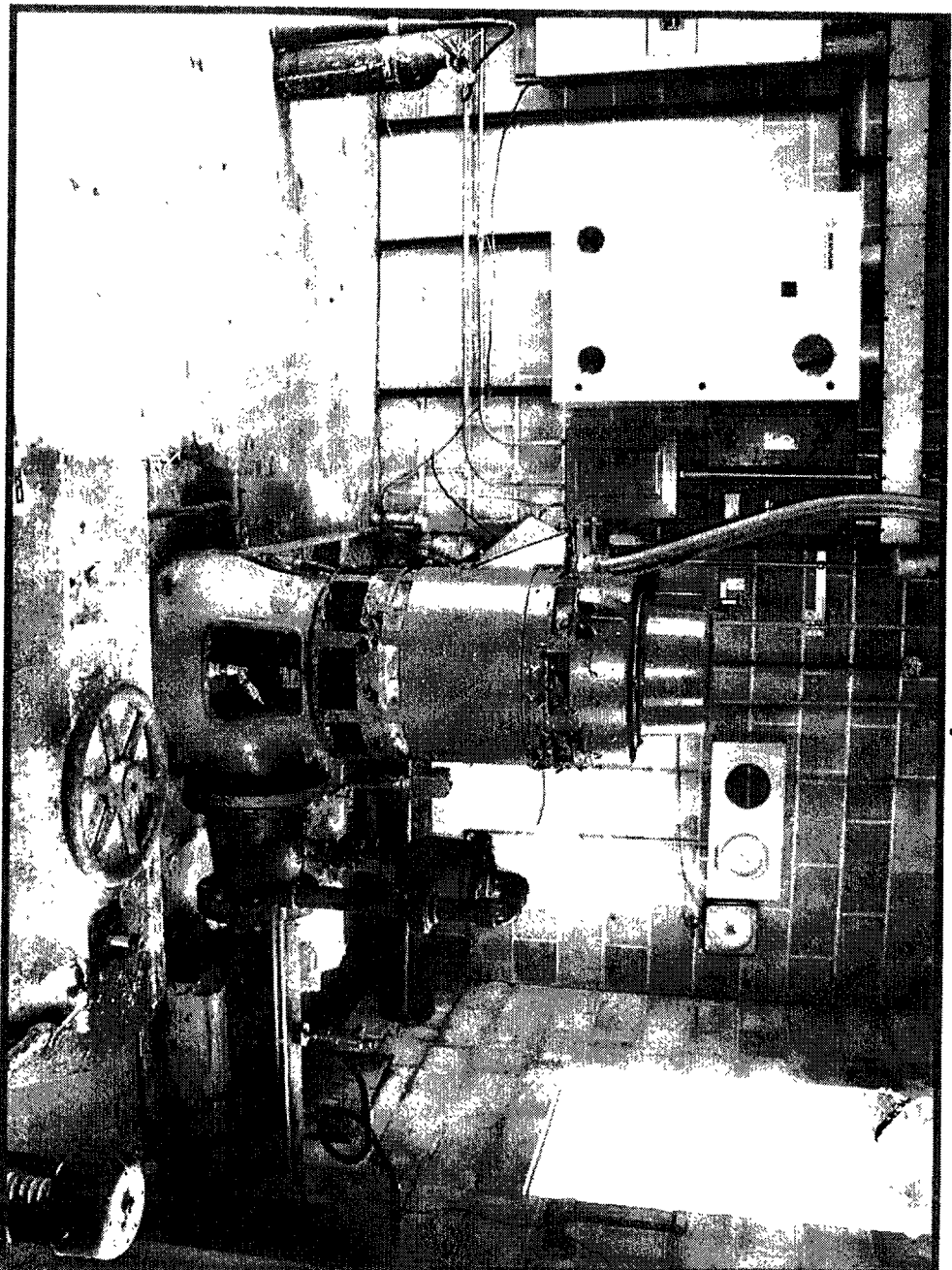


Royce Street-Raw Sampling Port



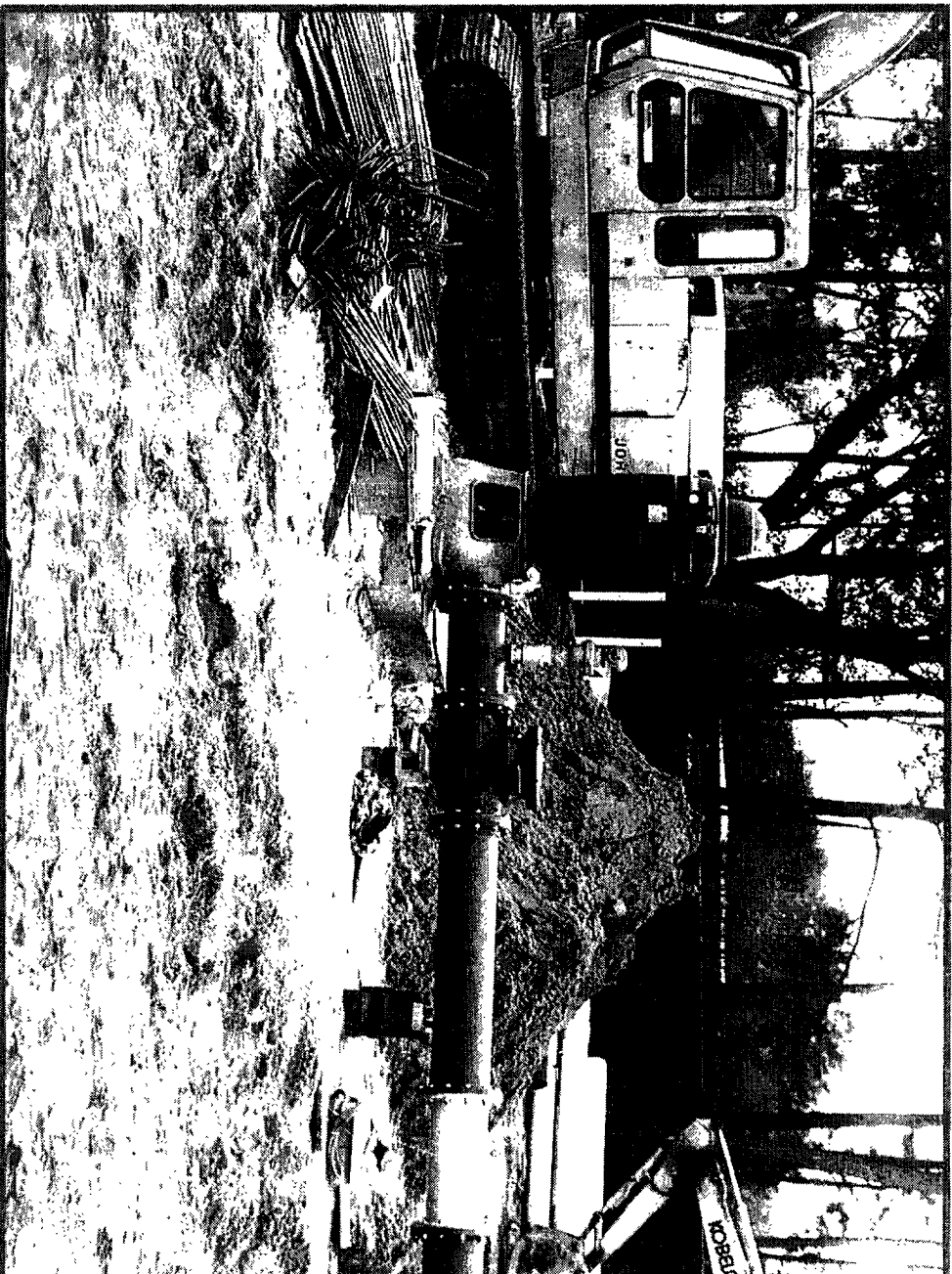
Royce Street-Treated Sampling Port

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida



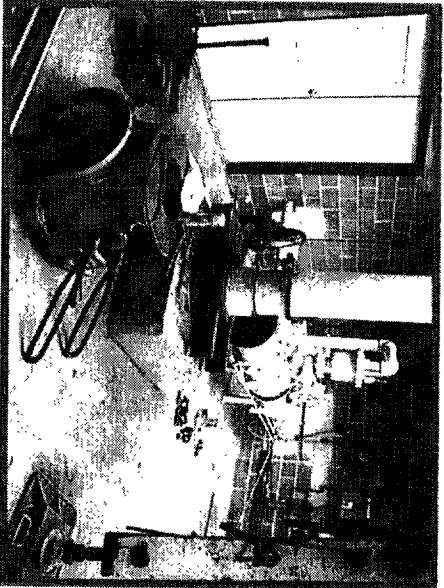
Ensley-Permanently Inactive

Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida

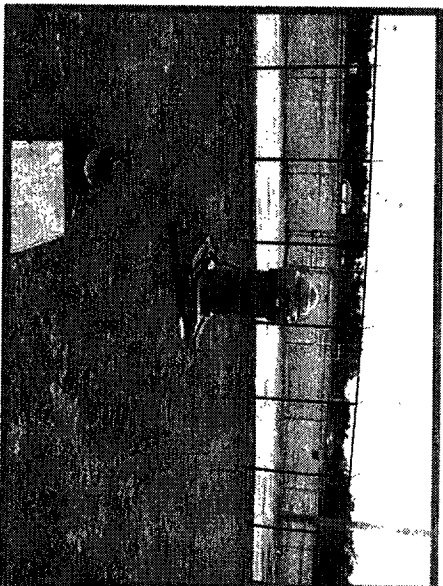


Sweeny-Temporarily Inactive

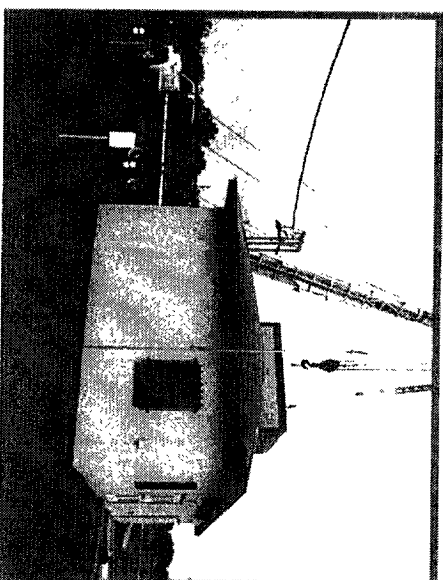
Baron & Budd, P.C. (Dallas, Texas)
ECUA Production Well Sampling – February 3, 2010
Escambia County, Florida



OLF 4 A-Temporarily Inactive
(Well Screen Extraction)



OLF 4 A-Temporarily Inactive
(Inactive Motor)



OLF 4 A-Temporarily Inactive
(Drill Rig/Well Screen Extraction)



Appendix C

Baron & Budd, P.C.
Emerald Coast Utilities Authority –
Production Well Sampling
Escambia County, Florida

Groundwater Sample Logs/Field Calibration Logs

Appendix C

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
ELL NO: Olive	SAMPLE ID: Treated	DATE: February / , 2010	

PURGING DATA

WELL CASING DIAMETER (inches): 24	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: UNK	PUMPING WATER LEVEL (feet): UNK	PURGE PUMP TYPE: Existing Pump
--------------------------------------	---------------------------------	------------------------------------	------------------------------------	-----------------------------------

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY

(only fill out if applicable)

$$= 120\%$$

UNK

feet) X

gallons/foot =

gallons	$\frac{1}{200}$	100	500	1000	x	gallons/foot	=
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EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

EQUIPMENT VOLUNTARILY
(only fill out if applicable)

$$\text{it} \quad \text{gallons} + (\quad \text{gallons/foot} \times \quad \text{feet}) + \quad \text{gallons} = \quad \text{gallons}$$

PUMP DEPTH IN WELL (feet): UNK	FINAL PUMP DEPTH IN WELL (feet): UNK	PURGING INITIATED AT: 1104	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
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[illegible]

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM	SAMPLER(S) SIGNATURE(S): 	SAMPLING INITIATED AT: 1125	SAMPLING ENDED AT:
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PUMP DEPTH IN WELL (feet): UNK	TUBING MATERIAL CODE: NA	FIELD-FILTERED: No Filtration Equipment Type: NA	FILTER SIZE: <u>NA</u> μ m
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FIELD DECONTAMINATION:	PUMP: No	TUBING: NA	DUPLICATE:	No
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FIELD DECONTAMINATION: FORM NO.		FIDING: NA		DATE/TIME: NA	
SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION		INTENDED ANALYSIS/USE	SAMPLING POINT/DEPTH

SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	ANALYSIS AND/OR METHOD	EQUIPMENT CODE	FLOW RATE (mL per minute)
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NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &	O-Grab	<100 mL
							Fluorinated Cmns		

[illegible][illegible][illegible]

REMARKS:									
NA - Not Applicable					UNK - Unknown				

REMARKS:

NA – Not Applicable.

UNK - Unknown.

Was the well pumping (active) prior to sampling Yes or No.

MS/MSD sample collected – Yes or No. Collection Time:

Well has fluoride treatment – Yes or No.

Photograph No. 6

CASING depth 110'.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump;
RFPF = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
/ELL NO: <i>DUNAWAY</i>		SAMPLE ID: <i>RAW</i>	DATE: February <i>2</i> , 2010

PURGING DATA

WELL CASING DIAMETER (inches): 30		TUBING DIAMETER (inches): NA		WELL SCREEN INTERVAL DEPTH: UNK		PUMPING WATER LEVEL (feet): UNK		PURGE PUMP TYPE: Existing Pump			
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (375 feet - UNK feet) X gallons/foot =											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = gallons + (gallons/foot X feet) + gallons = gallons											
PUMP DEPTH IN WELL (feet): UNK			FINAL PUMP DEPTH IN WELL (feet): UNK			PURGING INITIATED AT: 09/8		PURGING ENDED AT:		TOTAL VOLUME PURGED (gallons):	
TIME (CST)	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	ORP (mV)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0921				341	5.52	20.97	87	4.76	0	Clear	None
0924				338	5.51	20.98	88	4.81	0	Clear	None
0927				340	5.53	20.97	91	4.79	0	Clear	None
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.18; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016											
PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S): <i>Def. Danner</i>			SAMPLING INITIATED AT: 0929		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, & Fluorinated Cmps		O-Grab	<100 mL
							by HPLC/MS.			
REMARKS:										
NA – Not Applicable. UNK - Unknown.										
Was the well pumping (active) prior to sampling <u>Yes</u> or No. MS/MSD sample collected – Yes or <u>No</u> Collection Time:										
Well has fluoride treatment – Yes or <u>No</u> Photograph No. 5										
CASING depth 152'.										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^{\circ}\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
ELL NO: Lillian	SAMPLE ID: Raw	DATE: February 2, 2010	

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S): <i>David L. Anderson</i>			PROBING DEPTH: INITIATED AT: 1004		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &		O-Grab	<100 mL
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS: NA – Not Applicable.										
Was the well pumping (active) prior to sampling – Yes or No.										
Well has fluoride treatment – Yes or No.										
Casing depth 100'.										
UNK - Unknown.										
MS/MSD sample collected – Yes or No. Collection Time:										
Photograph No. 7										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Baller; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
WELL NO: Bronson	SAMPLE ID: Raw	DATE: February 2, 2010	

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S): <i>[Signature]</i>			SAMPLING INITIATED AT: 10/4/98		SAMPLING ENDED AT:		
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm		
FIELD DECONTAMINATION: PUMP: No TUBING: NA							DUPLICATE: No				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION							
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)		
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, & Fluorinated Cmps by HPLC/MS.	O-Grab	<100 mL		
REMARKS: NA - Not Applicable. Was the well pumping (active) prior to sampling Yes or No. Well has fluoride treatment Yes or No. CASING depth 127'. Photograph No. 9 UNK - Unknown. MS/MSD sample collected Yes or No. Collection Time: 10/4/98											
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)											
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)											

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
WELL NO: West Pensacola		SAMPLE ID: Treated	DATE: February 2, 2010

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM	SAMPLER(S) SIGNATURE(S): <i>[Signature]</i>						SAMPLING INITIATED AT: <i>12/4</i>		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK	TUBING MATERIAL CODE: NA						FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: <u>NA</u> µm	
FIELD DECONTAMINATION:	PUMP: No TUBING: NA						DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	l liter	None	None	NA				
							Fluorinated Cmps by HPLC/MS.			
REMARKS: NA – Not Applicable. Was the well pumping (active) prior to sampling - Yes or No. Well has fluoride treatment - Yes or No. <i>CASING depth 145'.</i>							UNK = Unknown. MS/MSD sample collected – Yes or (<u>No</u>) Collection Time: Photograph No. <i>12</i>			
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^{\circ}\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $+0.2\text{ mg/L}$ or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings $\leq 20\text{ NTU}$; optionally $\pm 5\text{ NTU}$ or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

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SITE NAME: ECUA Water Distribution System (County-wide)	SITE LOCATION: Escambia County, Florida
VELL NO: <u>West Wall Plant</u>	SAMPLE ID: <u>RAW</u> DATE: February <u>2</u> , 2010

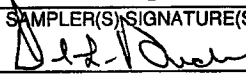
PURGING DATA

WELL CASING DIAMETER (inches): <u>26</u>	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: UNK	PUMPING WATER LEVEL (feet): UNK	PURGE PUMP TYPE: Existing Pump
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (<u>226</u> feet - UNK feet) X gallons/foot =				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = gallons + (gallons/foot X feet) + gallons = gallons				
PUMP DEPTH IN WELL (feet): UNK	FINAL PUMP DEPTH IN WELL (feet): UNK	PURGING INITIATED AT: <u>1253</u>	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):

TIME (CST)	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	ORP (mV)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
<u>1256</u>				<u>471</u>	<u>6.10</u>	<u>21.86</u>	<u>108</u>	<u>3.67</u>	<u>0</u>	Clear	None
<u>1259</u>				<u>471</u>	<u>6.07</u>	<u>21.88</u>	<u>109</u>	<u>3.60</u>	<u>0</u>	Clear	None
<u>1302</u>				<u>471</u>	<u>6.08</u>	<u>21.90</u>	<u>109</u>	<u>3.58</u>	<u>0</u>	Clear	None

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S): 			SAMPLING INITIATED AT: <u>1305</u>		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA		FIELD-FILTERED: No		FILTER SIZE: <u>NA</u> µm		
FIELD DECONTAMINATION: PUMP: No				TUBING: NA		DUPLICATE: No				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	PFOA, PFOS, & Fluorinated Cmps by HPLC/MS.		O-Grab	
NA	2	PE	1 liter	None	None	NA				

REMARKS:
NA - Not Applicable. UNK - Unknown.
Was the well pumping (active) prior to sampling - (Yes) or No. MS/MSD sample collected - Yes or (No) Collection Time:
Well has fluoride treatment - Yes or (No) Photograph No. 15
Casing depth 113'.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
WELL NO: Fc Scott		SAMPLE ID: Raw	DATE: February 2, 2010

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:						SAMPLER(S) SIGNATURE(S):	SAMPLING INITIATED AT: _____		SAMPLING ENDED AT: _____	
PUMP DEPTH IN WELL (feet): UNK						TUBING MATERIAL CODE: NA	FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: ____ µm	
FIELD DECONTAMINATION: PUMP: No TUBING: NA							DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	l liter	None	None	NA	PFOA, PFOS, &	O-Grab	<100 mL	
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS: NA – Not Applicable. Was the well pumping (active) prior to sampling Yes or No. Well has fluoride treatment Yes or No. CASING depth 144'.										
UNK - Unknown. MS/MSD sample collected -- Yes or No Collection Time: Photograph No. 17										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^{\circ}\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
/ELL NO: F i Scott		SAMPLE ID: Treated	DATE: February 2, 2010

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S): <i>De L. Anderson</i>			SAMPLING INITIATED AT: <i>1342</i>		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: <u>NA</u> µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &		O-Grab	<100 mL
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS:										
NA – Not Applicable.										
Was the well pumping (active) prior to sampling – <u>Yes</u> or No.										
Well has fluoride treatment – <u>Yes</u> or No.										
UNK - Unknown.										
MS/MSD sample collected – Yes or <u>No</u> Collection Time:										
Photograph No. <u>18</u>										
SARING depth <u>144'</u>										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^{\circ}\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $\pm 0.2\text{ mg/L}$ or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings $\leq 20\text{ NTU}$; optionally $\pm 5\text{ NTU}$ or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

-wide)		SITE LOCATION: Escambia County, Florida	
SAMPLE ID: <i>RAW</i>		DATE: February <i>2</i> , 2010	

[illegible]

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S): 			SAMPLING INITIATED AT: 1404		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA		FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm		
FIELD DECONTAMINATION: PUMP: No				TUBING: NA		DUPLICATE: No				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &		O-Grab	
							Fluorinated Crmps			
							by HPLC/MS.			
REMARKS: NA – Not Applicable.										
Was the well pumping (active) prior to sampling ☒ Yes or ☐ No.										
Well has fluoride treatment ☒ Yes or ☐ No.										
UNK - Unknown.										
MS/MSD sample collected – Yes or ☒ No. Collection Time:										
Photograph No. 19										
CASING depth 110'.										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

PURGING DATA

PURGING DATA

SAMPLING DATA

SAMPLING DATA

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $+0.2$ mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

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SITE NAME: ECUA Water Distribution System (County-wide)	SITE LOCATION: Escambia County, Florida
WELL NO: <u>Hager well plant</u>	SAMPLE ID: <u>RAW</u> DATE: February <u>3</u> , 2010

PURGING DATA

WELL CASING DIAMETER (inches): <u>26</u>	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: UNK	PUMPING WATER LEVEL (feet): UNK	PURGE PUMP TYPE: Existing Pump
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)				
= (<u>260</u> feet - UNK feet) X gallons/foot =				

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)				
= gallons + (gallons/foot X feet) + gallons = gallons				

PUMP DEPTH IN WELL (feet): UNK	FINAL PUMP DEPTH IN WELL (feet): UNK	PURGING INITIATED AT: <u>0743</u>	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
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TIME (CST)	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	ORP (mV)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
0752				442	6.71	22.26	84	6.84	0	Clear	None
0755				440	6.68	22.29	82	6.75	0	Clear	None
0758				441	6.69	22.29	83	6.76	0	Clear	None

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM	SAMPLER(S) SIGNATURE(S): 	SAMPLING INITIATED AT: <u>0802</u>	SAMPLING ENDED AT:
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PUMP DEPTH IN WELL (feet): UNK	TUBING MATERIAL CODE: NA	FIELD-FILTERED: No	FILTER SIZE: <u>NA</u> µm
Filtration Equipment Type: NA			

FIELD DECONTAMINATION: PUMP: No	TUBING: NA	DUPLICATE: No
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SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, & Fluorinated Cmps by HPLC/MS.	O-Grab	<100 mL

REMARKS: NA - Not Applicable.	UNK - Unknown.
Was the well pumping (active) prior to sampling <u>Yes</u> or No.	MS/MSD sample collected - Yes or <u>No</u> Collection Time:
Well has fluoride treatment <u>Yes</u> or No.	Photograph No. <u>1 (Batch 1)</u>
<u>Casing depth 157'.</u>	

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPF = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
VELL NO: <i>Spanish Trail</i>		SAMPLE ID: <i>Treated</i>	DATE: February <i>3</i> , 2010

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):			SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
David L. Anderson/CDM				<i>David L. Anderson</i>			0843			
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &	O-Grab	<100 mL	
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS:										
NA – Not Applicable.										
Was the well pumping (active) prior to sampling <u>Yes</u> or No.										
Well has fluoride treatment <u>Yes</u> or No.										
CASING depth 140'.										
UNK - Unknown.										
MS/MSD sample collected – Yes or <u>No</u> Collection Time:										
Photograph No. 4 (Batch 1)										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^{\circ}\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

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SITE NAME: ECUA Water Distribution System (County-wide)	SITE LOCATION: Escambia County, Florida
VELL NO: <u>Humphrey's</u>	SAMPLE ID: <u>RAW</u> DATE: February <u>3</u> , 2010

PURGING DATA

WELL CASING DIAMETER (inches): <u>30</u>	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: UNK	PUMPING WATER LEVEL (feet): UNK	PURGE PUMP TYPE: Existing Pump
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WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)

= (265 feet - UNK feet) X gallons/foot = gallons

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME
(only fill out if applicable)

= gallons + (gallons/foot X feet) + gallons = gallons

PUMP DEPTH IN WELL (feet): UNK	FINAL PUMP DEPTH IN WELL (feet): UNK	PURGING INITIATED AT: <u>1040</u>	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
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TIME (CST)	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	ORP (mV)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
<u>1043</u>				-	<u>6.87</u>	<u>22.20</u>	<u>78</u>	<u>6.59</u>	<u>0</u>	Clear	None
<u>1046</u>				-	<u>6.82</u>	<u>22.21</u>	<u>78</u>	<u>6.61</u>	<u>0</u>	Clear	None
<u>1050</u>				-	<u>6.83</u>	<u>22.21</u>	<u>78</u>	<u>6.62</u>	<u>0</u>	Clear	None

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM	SAMPLER(S) SIGNATURE(S): 	SAMPLING INITIATED AT: <u>1055</u>	SAMPLING ENDED AT:
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PUMP DEPTH IN WELL (feet): UNK	TUBING MATERIAL CODE: NA	FIELD-FILTERED: No Filtration Equipment Type: NA	FILTER SIZE: <u>NA</u> µm
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FIELD DECONTAMINATION: PUMP: No	TUBING: NA	DUPLICATE: No
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SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, & Fluorinated Cmps by HPLC/MS.	O-Grab	<100 mL

REMARKS:
 NA - Not Applicable. UNK - Unknown.
 Was the well pumping (active) prior to sampling Yes or No. MS/MSD sample collected - Yes or No Collection Time:
 Well has fluoride treatment Yes or No. Photograph No. 1 (Batch 2)
CASING depth 145'.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump;
 RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
 2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2);
 optionally, ± 0.2 mg/L or ± 10% (whichever is greater) Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
WELL NO: Humphrey's	SAMPLE ID: Treated	DATE: February 3, 2010	

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):			SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &	O-Grab	<100 mL	
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS: NA – Not Applicable. UNK - Unknown. MS/MSD sample collected – Yes or <u>No</u> Collection Time: Photograph No. <u>Photo 2 (Batch 2)</u> Was the well pumping (active) prior to sampling <u>Yes</u> or No. Well has fluoride treatment <u>Yes</u> or No. <u>Casing depth 145'.</u>										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^\circ\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $\pm 0.2\text{ mg/L}$ or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings $\leq 20\text{ NTU}$; optionally $\pm 5\text{ NTU}$ or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

p. 100

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
WELL NO: <i>Avondale</i>	SAMPLE ID:	DATE: February <i>3</i> , 2010	

PURGING DATA

WELL CASING DIAMETER (inches): <i>16</i>	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: UNK	PUMPING WATER LEVEL (feet): UNK	PURGE PUMP TYPE: Existing Pump
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) $= (204 \text{ feet} - \text{UNK} \text{ feet}) \times \text{gallons/foot} =$				
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) $= \text{gallons} + (\text{gallons/foot} \times \text{feet}) + \text{gallons} = \text{gallons}$				
PUMP DEPTH IN WELL (feet): UNK		FINAL PUMP DEPTH IN WELL (feet): UNK		PURGING INITIATED AT:
				PURGING ENDED AT:
				TOTAL VOLUME PURGED (gallons):

TIME (CST)	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	ORP (mV)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
										Clear	None
										Clear	None
										Clear	None
<i>NO SAMPLE</i>											

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S):			SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: <u>NA</u> µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH			
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, & Fluorinated Cmps by HPLC/MS.	O-Grab	<100 mL

REMARKS:
 NA - Not Applicable. UNK - Unknown.
 Was the well pumping (active) prior to sampling - Yes or No. MS/MSD sample collected - Yes or No. Collection Time:
 Well has fluoride treatment - ~~Yes~~ or No. Photograph No. *7 (Batch 2)*
Casing depth 149'. *No power, meter was hit by lightning.*

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump;
 RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.
 2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)
pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** ± 5% **Dissolved Oxygen:** all readings ≤ 20% saturation (see Table FS 2200-2);
 optionally, ± 0.2 mg/L or ± 10% (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
VELL NO: Muldoon		SAMPLE ID: Raw	DATE: February 3, 2010

PURGING DATA

WELL CASING DIAMETER (inches): 30	TUBING DIAMETER (inches): NA	WELL SCREEN INTERVAL DEPTH: UNK	PUMPING WATER LEVEL (feet): UNK	PURGE PUMP TYPE: Existing Pump
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WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY
(only fill out if applicable)

$$\text{gallons} = (200 \text{ feet} - \text{UNK} \text{ feet}) \times \text{gallons/foot} =$$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME

$$= \text{gallons} + (\text{gallons/foot} \times \text{feet}) + \text{gallons} = \text{gallons}$$

PUMP DEPTH IN WELL (feet): UNK	FINAL PUMP DEPTH IN WELL (feet): UNK	PURGING INITIATED AT: 1335	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
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[illegible]

CELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM	SAMPLER(S) SIGNATURE(S): 	SAMPLING INITIATED AT: 1347	SAMPLING ENDED AT:
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PUMP DEPTH IN WELL (feet): UNK	TUBING MATERIAL CODE: NA	FIELD-FILTERED: No Filtration Equipment Type: NA	FILTER SIZE: <u>NA</u> μm
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FIELD DECONTAMINATION:	PUMP: No	TUBING: NA	DUPLICATE:	No
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SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION		INTENDED ANALYZER	SAMPLING EQUIPMENT	SAMPLE PUMP CALIBRATION
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SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	ANALYSIS AND/OR METHOD	EQUIPMENT CODE	FLOW RATE (mL per minute)
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &	O-Grab	<100 mL

NAME	Q	FE	WATER	WASTE	WASTE	NAME	Q	FE	WATER	WASTE
						Fluorinated Cmps				

[illegible][illegible][illegible][illegible]

REMARKS:

NA – Not Applicable.

UNK - Unknown.

Was the well pumping (active) prior to sampling Yes or No.

MS/MSD sample collected – Yes or No Collection Time:

Well has fluoride treatment - Yes or No.

Photograph No. 8 (Batch 2)

Casing depth 145'.

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump;
RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
WELL NO: Royce Street		SAMPLE ID: Treated	DATE: February 3, 2010

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S): <i>David L. Anderson</i>			SAMPLING INITIATED AT: <i>1516</i>		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: <u>NA</u> µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &		O-Grab	<100 mL
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS:										
NA - Not Applicable. UNK - Unknown.										
Was the well pumping (active) prior to sampling - <u>Yes</u> or No. MS/MSD sample collected - Yes or <u>No</u> . Collection Time:										
Well has fluoride treatment - <u>Yes</u> or No. Photograph No. <i>13 (Batch 2)</i>										
CASING DEPTH <i>136'</i>										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

ES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^{\circ}\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

GROUNDWATER SAMPLING LOG

SITE NAME: ECUA Water Distribution System (County-wide)		SITE LOCATION: Escambia County, Florida	
WELL NO: Ensley	SAMPLE ID:		DATE: February 3, 2010

PURGING DATA

[illegible]

SAMPLING DATA

SAMPLING DATA										
SAMPLED BY (PRINT) / AFFILIATION: David L. Anderson/CDM				SAMPLER(S) SIGNATURE(S):			SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA		FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm		
FIELD DECONTAMINATION: PUMP: No TUBING: NA						DUPLICATE: No				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &	O-Grab	<100 mL	
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS:										
NA – Not Applicable.				UNK - Unknown.			Discharge lines have been plugged. CASING depth 160'.			
Was the well pumping (active) prior to sampling – Yes or No.				MS/MSD sample collected – Yes or No. Collection Time:						
Well has fluoride treatment – Yes or No.				Photograph No. 14 (Batch 2)						
well has been inactive for 3-4 years, no treatment or power. No future use of the site.										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

ES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** $\pm 0.2^{\circ}\text{C}$ **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, $\pm 0.2\text{ mg/L}$ or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings $\leq 20\text{ NTU}$; optionally $\pm 5\text{ NTU}$ or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

[illegible]

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):			SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
David L. Anderson/CDM										
PUMP DEPTH IN WELL (feet): UNK				TUBING MATERIAL CODE: NA			FIELD-FILTERED: No Filtration Equipment Type: NA		FILTER SIZE: NA µm	
FIELD DECONTAMINATION: PUMP: No				TUBING: NA			DUPLICATE: No			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH				
NA	2	PE	1 liter	None	None	NA	PFOA, PFOS, &	O-Grab	<100 mL	
							Fluorinated Cmps			
							by HPLC/MS.			
REMARKS: NA – Not Applicable.										
Was the well pumping (active) prior to sampling – Yes or No.										
Well has fluoride treatment – <u>Yes</u> or No.										
well was down for maintenance, no power.										
MS/MSD sample collected – Yes or No. Collection Time:										
Photograph No. 16-18 (Batch 2)										
CARING depth 215'.										
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)										
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPD = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Grab)										

NOTES: 1. The above do not constitute all of the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units **Temperature:** ± 0.2 °C **Specific Conductance:** $\pm 5\%$ **Dissolved Oxygen:** all readings $\leq 20\%$ saturation (see Table FS 2200-2); optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater) **Turbidity:** all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

Revision Date: February 12, 2009

Form FD9000-8 CALIBRATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000) 11-10-05

Project/Site: Baron Budd - ECUA Production Wells Date: Feb. 1-3, 2010 Meter # YSI 556 (#1138)

Temperature (Quarterly) For Date of Last Temperature Verification see in log book												
Dissolved Oxygen		DEP SOP FT 1500	Initials	Date	Time	Probe Charge	Probe Gain	mg/L	Temp °C	% DO	Saturation mg/L (from Chart)	Pass or Fail
Acceptance Criteria: +/- 0.3 mg/l												
CAL ICV <u>CCV</u>			DJA	2-1-10	09:30					97.7		P
CAL ICV <u>CCV</u>			DJA	2-2-10	06:50					99.9		P
CAL ICV <u>CCV</u>			DJA	2-3-10	07:00					97.8		P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
Acceptance Criteria: +/- 5%												
Specific Conductance		DEP SOP FT 1200	Initials	Date	Time	Standard $\mu\text{mhos/cm}$	Exp. Date	Lot #	Bottle #	Cell Constant	Reading $\mu\text{mhos/cm}$	Pass or Fail
CAL ICV <u>CCV</u>			DJA	2-1-10	09:30	1,000					978	P
CAL ICV <u>CCV</u>			DJA	2-2-10	06:50	1,000					984	P
CAL ICV <u>CCV</u>			DJA	2-3-10	07:00	1,000					971	P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
CAL ICV CCV												P
Acceptance Criteria: +/- 0.2 SU												
pH		DEP SOP FT 1100	Initials	Date	Time	Standard SU	Exp. Date	Lot #	Bottle #	Slope	Reading SU	Pass or Fail
CAL ICV <u>CCV</u>			DJA	2-1-10	09:30	4					4.04	P
CAL ICV CCV			DJA	2-2-10	06:50	7					7.08	P
CAL ICV CCV			DJA	2-3-10	07:00	10					10.10	P
CAL ICV CCV			DJA	2-1-10	09:30	4					3.58	P
CAL ICV CCV			DJA	2-2-10	06:50	7					7.05	P
CAL ICV CCV			DJA	2-3-10	07:00	10					10.08	P
CAL ICV CCV			DJA	2-1-10	09:30	4					4.01	P
CAL ICV CCV			DJA	2-2-10	06:50	7					6.97	P
CAL ICV CCV			DJA	2-3-10	07:00	10					7.98	P

Perform only in Calibrate Mode:
Perform only in Run Mode:
Perform only in Run Mode:

CAL - Calibrate -
ICV - Initial Calibration Verification
CCV - Continuing Calibration Verification

Field Equipment Calibration Record

[illegible]

D

Appendix
D

Appendix D

Baron & Budd, P.C.
Emerald Coast Utilities Authority –
Production Well Sampling
Escambia County, Florida

Analytical Data/Chain-of-Custodies
(Hard Copy and Compact Disk)

Appendix D

February 22, 2010

Analytical Report for Service Request No: K1000911

David Anderson
Camp Dresser & McKee, Incorporated
325 John Knox Road
Building M, Suite 100
Tallahassee, FL 32303

RE: Baron & Budd P.C/95779-75319

Dear David:

Enclosed are the results of the samples submitted to our laboratory on February 02, 2010. For your reference, these analyses have been assigned our service request number K1000911.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/afs

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value that was detected outside the quantitation range.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value that was detected outside the quantitation range.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value that was detected outside the quantitation range.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Camp Dresser & McKee, Inc.
 Project: Baron & Budd, P C
 Date Received: 02/02/10 to 02/03/10
 Sample Matrix: Water

Service Request No.: K1000911

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Nineteen water samples were received for analysis at Columbia Analytical Services between 02/02/10 and 02/03/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MSSurrogate Exceptions:

The recovery of Perfluoro-n-[1,2-13C2]undecanoic Acid in Field Blank 2, Bronson "Raw", W & Avery "Raw", West Well Plant "Treated", F:Scott "Raw", Bronson "Treated" MS, and Bronson "Raw" DMS was outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

The recovery of Perfluoro-n-[1,2,3,4-13C4] butanoic acid, Perfluoro-n-[1,2-13C2]undecanoic Acid and Perfluoro-n-[1,2-13C2]dodecanoic Acid in University Parkway "Treated" were outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

The recovery of Perfluoro-n-[1,2-13C2]undecanoic Acid and Perfluoro-n-[1,2-13C2]dodecanoic Acid in McCory "Treated", Lillian "Raw", ", Lillian "Treated", West Pensacola "Raw", West Pensacola "Treated", W & Avery "Treated", West Well Plant "Raw", F:Scott "Treated", and Bronson "Raw" DMS were outside the control limits listed in the results summary. The limits are default values temporarily in use until sufficient data points are generated to calculate statistical control limits. Based on the method and historic data, the recoveries observed were in the range expected for this procedure. No further corrective action was taken.

No other anomalies associated with the analysis of these samples were observed.

Approved by  Date 

Chain of Custody Documentation

PROJECT NAME: Barton & Bradd P.C.
 PROJECT NUMBER: 95449-75319
 PROJECT MANAGER: David Anderson
 COMPANY ADDRESS: CPM
3522 Thomerville Rd, Ste 200
 CITY/STATE ZIP: Tallahassee, FL 32309
 E-MAIL ADDRESS: _____
 PHONE # 850-281-9150 FAX # _____
 SAMPLER'S SIGNATURE: _____

NUMBER OF CONTAINERS				REMARKS																	
SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX																	
Field Blank #1	2.1.10	0948		DI	2																
Ellyson "Raw"	2.1.10	1002		GW	2																
Ellyson "Treated"	2.1.10	1015		GW	2																
Davis "Raw"	2.1.10	1040		GW	2																
Davis "Treated"	2.1.10	1052		GW	2																
Oliver "Raw"	2.1.10	1115		GW	2																
Oliver "Treated"	2.1.10	1125		GW	2																
Carrage Hills "Raw"	2.1.10	1156		GW	2																
Carrage Hills "Treated"	2.10.10	1206		GW	2																
Watson "Raw"	2.1.10	1225		GW	2																

Circle which metals are to be analyzed:
 Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg
 Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE)
 SPECIAL INSTRUCTIONS/COMMENTS: _____

REPORT REQUIREMENTS
 I. Routine Report: Method Blank, Surrogate, as required
 II. Report Dup., MS, MSD as required
 III. Data Validation Report (includes all raw data)
 X IV. CLP Deliverable Report
 X V. EDD

TURNAROUND REQUIREMENTS
 24 hr. _____ 48 hr. _____
 5 Day _____
 X Standard (10-15 working days)
 Provide FAX Results _____
 Requested Report Date _____

RELINQUISHED BY:
 Signature: _____ Date/Time: _____
 Printed Name: _____ Firm: _____

RECEIVED BY:
 Signature: David L. Anderson Date/Time: 2.1.10 16:45
 Printed Name: David L. Anderson Firm: _____



CHAIN OF CUSTODY

1317 South 13th Ave. • Kelso, WA 98626 • (360) 577-7222 • (800) 695-7222x07 • FAX (360) 636-1068

SR#: K1000911 PAGE 2 OF 2 COC #

PROJECT NAME	<u>Baran & Bred P.C.</u>		
PROJECT NUMBER	<u>95449-73319</u>		
PROJECT MANAGER	<u>DAVID ANDERSON</u>		
COMPANY ADDRESS	<u>CDM</u>		
CITY/STATE/ZIP	<u>3022 Thomasville St SE 30309</u>		
EMAIL ADDRESS	<u>Tallahassee, FL 32309</u>		
PHONE #	<u>850-366-9509</u>	FAX #	<u> </u>
SAMPLER'S SIGNATURE			

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Watson "Treated"	2.1.10	1235		GW	2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											</

REPORT REQUIREMENTS	INVOICE INFORMATION
I. Routine Report: Method Blank, Surrogate, as required	P.O. # <u> </u> Bill To: <u> </u>
II. Report Dup., MS, MSD as required	
III. Data Validation Report (includes all raw data)	
IV. CLP Deliverable Report	
V. EDD	

TURNAROUND REQUIREMENTS	SPECIAL INSTRUCTIONS/COMMENTS:
24 hr. <u> </u> 5 Day <u> </u> ☒ Standard (10-15 working days) Provide FAX Results <u> </u>	Circle which metals are to be analyzed: Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg *INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: <u> </u> (CIRCLE ONE) RELINQUISHED BY: <u> </u> RECEIVED BY: <u> </u> Signature <u> </u> Signature <u> </u> Date/Time <u> </u> Date/Time <u> </u> Printed Name <u> </u> Printed Name <u> </u> Firm <u> </u> Firm <u> </u>

RELINQUISHED BY:	RECEIVED BY:
Signature <u> </u> Date/Time <u> </u> Printed Name <u> </u> Firm <u> </u>	Signature <u> </u> Date/Time <u> </u> Printed Name <u> </u> Firm <u> </u>

