

**ORIGINAL
FILE COPY**

DOCKET NO.: 951056-WS - [Palm Coast Utility Corporation]

WITNESS: Direct Testimony of Blanca R. Rodriguez, Florida Department
of Environmental Protection, Appearing On Behalf of the Florida
Public Service Commission

DATE FILED: May 31, 1996

ACK _____
AFA _____
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WAS _____
OTH _____

DOCUMENT NUMBER-DATE

06021 MAY 31 1996

FPSC-RECORDS/REPORTING

1 DIRECT TESTIMONY OF BLANCA R. RODRIGUEZ

2 Q. Please state your name and business address.

3 A. My name is Blanca Rodriguez and my business address is 7825 Baymeadows
4 Way, Suite B-200, Jacksonville, FL, 32257.

5 Q. Please state a brief description of your educational background and
6 experience.

7 A. I am an environmental manager and supervise the Drinking Water Section.
8 I have a Bachelor of Science degree in Chemical Engineering and 20 years
9 experience in the engineering field, 12 years of which was an engineer in the
10 Potable Water Section with the Florida Department of Environmental Protection.

11 Q. By whom are you presently employed?

12 A. I am employed by the Florida Department of Environmental Protection
13 (FDEP).

14 Q. How long have you been employed with the Department of Environmental
15 Protection and in what capacity?

16 A. I have been employed by the FDEP during the last 12 years as an
17 engineer. At this time, I am an environmental manager supervising the
18 Drinking Water Section.

19 Q. What are your general responsibilities at the Department of
20 Environmental Protection?

21 A. In addition to supervising 11 people in my section, I am responsible for
22 the permitting, compliance and enforcement activities for the Public Water
23 Systems in the FDEP's Northeast District.

24 Q. Are you familiar with Palm Coast Utility Corporation's water system in
25 Flagler County?

1 A. Yes.

2 Q. Does the utility have a current construction permit from the Department
3 of Environmental Protection?

4 A. Yes.

5 Q. Please state the issuance date and the expiration date of the
6 construction permit.

7 A. Permit number WC-18-184431 was issued on December 14, 1990 and expired
8 on December 14, 1991. This permit was for construction of water treatment
9 plant number two, the membrane softening plant.

10 Q. Is the plant in compliance with its permit?

11 A. Yes.

12 Q. Are the utility's treatment facilities and distribution system
13 sufficient to serve its present customers?

14 A. Yes.

15 Q. Does the utility maintain the required 20 psi minimum pressure
16 throughout the distribution system?

17 A. Yes. The pressure during the last sanitary survey on June 17, 1994 was
18 65 psig. A copy of this survey is provided in Exhibit BRR-1.

19 Q. Does the utility have an adequate auxiliary power source in the event
20 of a power outage?

21 A. Yes. Auxiliary power is available to operate the complete plant.

22 Q. Are the utility's water wells located in compliance with Rule
23 62-555.312, Florida Administrative Code?

24 A. Yes.

25 Q. Does the utility have certified operators as required by Rule 61E12-41,

1 Florida Administrative Code?
2 A. Yes.
3 Q. Has the utility established a cross-connection control program in
4 accordance with Rule 62-555.360, Florida Administrative Code?
5 A. Yes.
6 Q. Is the overall maintenance of the treatment plant and distribution
7 facilities satisfactory?
8 A. Yes. No deficiencies were noted during the last sanitary survey.
9 Q. Does the water produced by the utility meet the State and Federal
10 maximum contaminant levels for primary and secondary water quality standards?
11 A. Yes. The water quality meets the standards set forth in Chapter 62-550,
12 Florida Administrative Code.
13 Q. Does the utility monitor the organic contaminants listed in Rule
14 62-550.410, Florida Administrative Code?
15 A. Yes. The last analysis was performed on November 9, 1993 and all of the
16 chemical parameters were below detectable level (BDL).
17 Q. Do recent chemical analyses of raw and finished water, when compared to
18 regulations, suggest the need for additional treatment?
19 A. No.
20 Q. Does the utility maintain the required chlorine residual or its
21 equivalent throughout the distribution system?
22 A. Yes. Flushing is needed in some areas of the distribution system in
23 order to maintain the required chlorine residual.
24 Q. Are the plant and distribution systems in compliance with all the other
25 provisions of Title 62, Florida Administrative Code, not previously mentioned?

1 | A. Yes.

2 | Q. Does the utility have a permit to discharge the concentrate from the
3 | membrane softening treatment plant?

4 | A. Yes. Our Industrial Wastewater Section issued a permit to discharge the
5 | concentrate.

6 | Q. Please state the issuance date and the expiration date of the permit.

7 | A. Permit number FL0042838 was issued on July 3, 1991 and the expiration
8 | date is June 30, 1996.

9 | Q. Please explain how the utility disposes the concentrate from the
10 | membrane softening water plant.

11 | A. The utility disposes the concentrate using a surface water discharge to
12 | the Royal Palm Waterway.

13 | Q. Has Palm Coast Utility Corporation been the subject of any Department
14 | of Environmental Protection enforcement action within the past two years?

15 | A. No.

16 | Q. Do you have anything further to add?

17 | A. Yes. Water treatment plant number one received the DEP Water Treatment
18 | Operation Award in 1995 for their effective operation and maintenance program
19 | and their commitment to maintaining and protecting the drinking water quality
20 | and treatment facilities.

21 |

22 |

23 |

24 |

25 |



Department of Environmental Protection

Lawton Chiles
Governor

Northeast District
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590

Virginia B. Wetherell
Secretary

November 2, 1994

Mr. Thomas Trace
Pal Coast Utility Corp.
2 Utility Drive
Palm Coast, Florida 32037

Flagler County - Potable Water
Palm Coast WTPs 1 & 2
PWS ID # 2180863

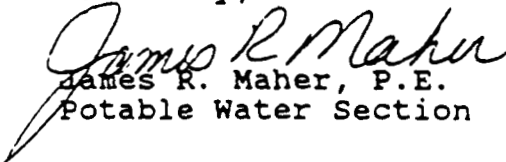
Dear Mr. Trace:

On June 17, 1994 sanitary surveys were done on the referenced Community Public Water Systems. Jim Hogan and Brian Matthews were both extremely helpful in providing information for our survey. No deficiencies were noted and we are pleased to state that Palm Coast currently meets or exceeds all State and Federal requirements.

The chemical analyses are all up to date for 1994. Total Trihalomethane sampling requirements were recently addressed by Ms. Vicki Singer of our office under separate correspondence. Also, the first annual Lead and Copper results were recently received and were satisfactory.

Enclosed are copies of the survey reports for your files. The cooperation we have received from you and your staff in meeting the requirements of Florida's Safe Drinking Water Program is greatly appreciated.

Sincerely,


James R. Maher, P.E.
Potable Water Section

JRM:jm/
enclosures


cc: Flagler County Health Department

ID. No. 2180863 -01

State of Florida
 Department of Environmental Protection
 SANITARY SURVEY REPORT
 for
 Drinking Water Systems

Inspection Date: 6/17/94

I. GENERAL

Plant name PALM COAST WTP #1 County FLAGLER
 Plant Owner PALM COAST UTILITY CORP. Person contacted CHUCK BEERS
JIM HOGAN
 Address 2 UTILITY DR. Phone 445-3311
 City PALM COAST zip 32037 Operator/No. A-2696; A 405-
 Population Served est 24,000 * Operator Phone No. 446-6138
 No. of service connections 10739 Meter 20" PRESSURE
 Plant designed by RUSSELL & AXIOW Plant Capacity 6 MGD
 Storage capacity 2.45 MG Output, avg day 3.519 MGD
 Approval No./date 12704 3/30/71 Daily maximum 4.321 MGD
 Emergency source SOULW Gen. & Part; Emergency power GEN RUNS EVERYTH
MAIN WELLS
 TYPE OF SERVICE: Community [] Non-community [] Non-transient
 Type of facility: MUNICIPAL
 latitude 29° 33' 00" N longitude 81° 12' 45" W
 Location (provide directions) HWY 100 WEST FROM I-95 TO BELLE TERRE.
NON BELLE TERRE 2 SPLITLIGHTS TO PALM COAST PUMP WEST WEST TO UTILITY DR.

II. SOURCE OF RAW WATER ground No. of wells 27
 surface [] purchased

A. Ground Supplies

Well No.	1	2	3	4	5	6	7	8
year drilled								
depth								
casing depth								
casing diameter								
casing material								
static water level								
strainer								
subject to inundation								
concrete slab								
salt infiltration								
check valve								
grouted								
Pump type								
year pump								
capacity (gpm)								
horsepower								
comments								

see attached well table

* Based on a 2.25 multiplier of persons per connection.
 Best available data from County & Utility.

III. TREATMENT

A. General

- | | | | |
|-------------------------------------|-----------------|-------------------------------------|---------------------|
| <input type="checkbox"/> | aeration | <input checked="" type="checkbox"/> | lime softening |
| <input checked="" type="checkbox"/> | chlorination | <input checked="" type="checkbox"/> | coagulation |
| <input checked="" type="checkbox"/> | iron removal | <input type="checkbox"/> | recarbonation |
| <input checked="" type="checkbox"/> | filtration | <input type="checkbox"/> | fluoridation |
| <input checked="" type="checkbox"/> | pH adjustment | <input type="checkbox"/> | sedimentation |
| <input type="checkbox"/> | reverse osmosis | <input type="checkbox"/> | membrane filtration |
| <input type="checkbox"/> | ion exchange | <input type="checkbox"/> | sequestration |

N/A B. Aeration

No. of trays _____ capacity _____
 dimensions _____
 slimes/algae noted iron deposits
 screens satisfactory HS odor
 comments: _____

C. Chemical Use

chemical	feeder type	capacity	point of use	purpose
LIME	30 WAT	3000 #/hr	CLARIFIER	SOFTENING
IRON SALT POLYMER	WAT	500 GPD	CLARIFIER	FLOCCULATION 3 ppm
Chlorine	Advanced	500 #/day	post settling	DISINFECTION
Ammonia	Percolator	150 #/day	post CL	DISINFECTION
Calquest Polyphosphate	LMI	5 GPD	PH GST	CORROSION CONTROL

D. Chemical Feeders

- | | | | |
|-------------------------------------|---------------------|-------------------------------------|------------------------|
| <input type="checkbox"/> | oil on floor | <input type="checkbox"/> | chemical spilled |
| <input checked="" type="checkbox"/> | spare parts kept | <input checked="" type="checkbox"/> | has repair manuals |
| <input type="checkbox"/> | noisy operation | <input checked="" type="checkbox"/> | chemicals well stocked |
| <input type="checkbox"/> | water on floor | <input checked="" type="checkbox"/> | feeders all work |
| <input type="checkbox"/> | excessive vibration | <input checked="" type="checkbox"/> | bags stored dry |

E. Coagulation/Flocculation

- | | | | |
|-------------------------------------|-----------------|-------------------------------------|------------------------|
| <input type="checkbox"/> | settling poor | <input type="checkbox"/> | chem dose questionable |
| <input checked="" type="checkbox"/> | no blanket seen | <input type="checkbox"/> | effluent taste & odor |
| <input type="checkbox"/> | pinpoint floc | <input checked="" type="checkbox"/> | color removal good |

F. Softening

- | | | | | | |
|-------------------------------------|-----------------------|-------------------------------------|-----------------|-------------------------------------|---|
| <input type="checkbox"/> | spiractor | <input type="checkbox"/> | accelerator | <input checked="" type="checkbox"/> | reaction basin |
| <input type="checkbox"/> | floc unstable | <input type="checkbox"/> | blanket visible | | |
| <input checked="" type="checkbox"/> | feed intermittent | <input checked="" type="checkbox"/> | settling good | | |
| <input checked="" type="checkbox"/> | water leaves clear | <input checked="" type="checkbox"/> | silica used | | |
| <input checked="" type="checkbox"/> | sludge return used | <input checked="" type="checkbox"/> | coagulant aid | | |
| <input type="checkbox"/> | improper sludge level | | | | SLUDGE LEVEL CONTROLLED WITH
FLOWDOWN ON TUNER |

N/A G. Fluoridation

- | | | | |
|--------------------------|--------------------|--------------------------|---------------------|
| <input type="checkbox"/> | analyses OK | <input type="checkbox"/> | feeder works well |
| <input type="checkbox"/> | separate storage | <input type="checkbox"/> | acid spilled |
| <input type="checkbox"/> | dusty enclosure | <input type="checkbox"/> | frequent shut downs |
| <input type="checkbox"/> | monthly samples OK | <input type="checkbox"/> | corrosion evident |

H. Filtration

- | | | | | |
|-------------------------------------|-------------------|-------------------------------------|-----------------------|---|
| <input type="checkbox"/> | mudballs present | <input type="checkbox"/> | clearwell turbid | * |
| <input checked="" type="checkbox"/> | backwash works OK | <input type="checkbox"/> | sediment in clearwell | |
| <input type="checkbox"/> | algae present | <input checked="" type="checkbox"/> | gallery kept clean | |

N/A I. Membrane Filtration

chemical used _____
 pH adjustment _____
 acid feed _____
 antiscalant _____
 polymer _____
 conductivity meter pH control alarm/shutdown
 permitted brine disposal
 location of brine disposal _____
 No. of membranes _____
 membrane configuration: _____

* TURBID EFFLUENT WILL PREVENT BU, AS WILL 4' HEAD LOSS
 DUNE MEDIA 30" anthracite/sand/coarse gravel/clay like underdrain
 RECHARGE MEDIA YEARLY.

J. Disinfection

- air pack OK
- wrench present
- fan works
- dual system
- leak detector
- test kit OK
- ample stock

- lead washers kept
- ammonia kept
- single system
- automatic change over
- loss of capability alarm
- properly chained/stored
- repair kit

Number of feeders 3 capacity _____ # feed rate _____
 Chlorine residual at plant 3+ In distribution 3+
 comments: _____

IV. STORAGE

- ground storage
- hydropneumatic tank
- elevated storage
- clear well

tank number	1	2	3	4
capacity (gallons)	1,000,000	300,000	750,000	400,000
material	steel	steel	steel	steel
drain capacity	24"	24"	hydrant	hydrant
bypass capacity	none	10"	16"	16"
screens	no	no	no	no
relief valve	N/A	N/A	N/A	N/A
condition	cut & covered	work	cleaned 1993	
comments	cap clean GST	clean well.	120' → 150' 1-95	129' → 168' Beachside.

V. HIGH SERVICE PUMPS

Number	3 @ 1	2 @ 2	1 @ 3	transfer pumps	BU
horsepower	40	125	125	20	30
capacity (gpm)	1000	2000	2000	1700	2800
Model/type	Deming	Deming	Deming	Flm	Flm
comments			DESEL DRIVE		

VI. DISTRIBUTION

material PVC, Duct AC max diam 20" min diam 3/4"
 operation pressure 65 Fire system YES ~ 1600 hydrants
 No. of Dead ends present? 1500 est Flushing Log kept? yes
 Are there any cross connections? none known - Have CCC Plan
 Are there any sanitary hazards near well? no
 Any leaks suspected? no
 Supply shortages? no
 comments _____

VII. WATER QUALITY REVIEW

A. Chemical

1. lab capability
 - pH
 - fluoride
 - other continuous turbidimeter, Color, Fe, Cl, SO₄
 - chlorine
2. Chems

<input checked="" type="checkbox"/> Primary Inorganics <u>11/93</u>	<input checked="" type="checkbox"/> TTHM's <u>✓</u>
<input checked="" type="checkbox"/> Secondary Standards <u>11/93</u>	<input checked="" type="checkbox"/> Group I UC's <u>1/93</u>
<input checked="" type="checkbox"/> Turbidity <u>continuous</u>	<input checked="" type="checkbox"/> Group II UC's <u>11/93</u>
<input checked="" type="checkbox"/> VOC's <u>9/94</u>	<input checked="" type="checkbox"/> Pesticides <u>1/93/2/92</u>
<input checked="" type="checkbox"/> Radionuclides <u>11/93</u>	<input checked="" type="checkbox"/> Asbestos <u>11/93</u>
<input checked="" type="checkbox"/> Nitrate <u>9/94</u>	<input checked="" type="checkbox"/> Nitrite <u>9/94</u>

comments: * THM monitoring discussed with Vicki Singer - to be reported QTR.

3. Maximum Contaminant Level (MCL) Violations:

Color check samples - SST monitoring Color on MOR

- + A new 2 MG GST is planned to be installed behind 1 MG tank
- * Former 100,000 gal elevated tank @ South Zone to be dismantled.

B. Bacteriological

1. Are bacteriological samples being conducted as required? YES

2. Is current treatment satisfactory? YES

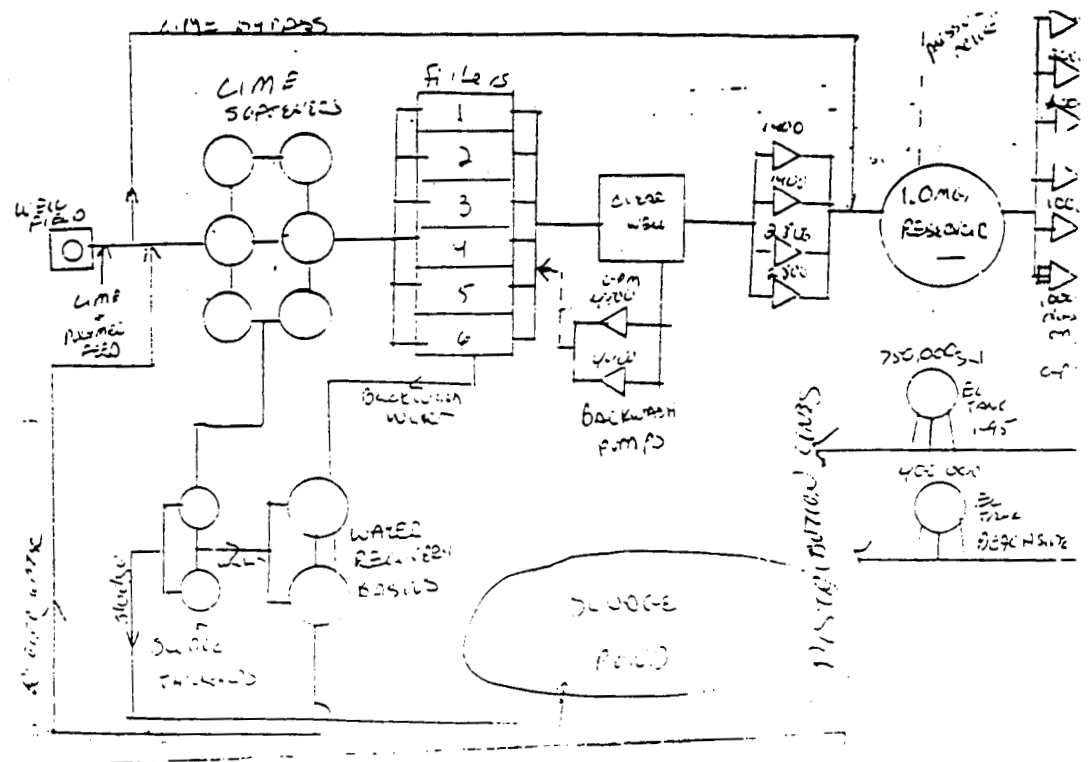
VIII. CONCLUSION

- Facility meets State and Federal minimum requirements Supplement information is attached
- The following deficiencies were noted

1.	Deficiency	Code Reference
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Inspector's Signature: James R. Maher Date: 10/28/94
 Title: PE II
 Approved by: _____ Date: _____
 Supervisor (signature)

Plant Schematic:



PALM COAST UTILITY CORPORATION

ACTIVE WELLS - SHALLOW AQUIFER (WTP NO. 1)

Well No.	Casing Diameter (inches)	Open Hole Diameter (inches)	Total Depth (feet)	Casing Depth (feet)	Flowing/Pumped	Safe Sustained Yield ¹ (gpm)	Transmissivity ¹ (gpd/ft)	Storage Coefficient ²	Leakance ² (day ⁻¹)	Aquifer	Use
SW-4	12	6	110	88	pumped	100	2000	3.0 x 10 ⁻⁴	2.0 x 10 ⁻⁴	shallow	domestic
SW-5	16	10	90	58	pumped	250	2000	3.0 x 10 ⁻⁴	2.0 x 10 ⁻⁴	shallow	domestic
SW-6	12	6	94.5	48	pumped	120	2000	3.0 x 10 ⁻⁴	2.0 x 10 ⁻⁴	shallow	domestic
SW-7	12	6	84	55	pumped	150	2000	3.0 x 10 ⁻⁴	2.0 x 10 ⁻⁴	shallow	domestic
1-8	14	8	84	50	pumped	250	2000	3.0 x 10 ⁻⁴	2.0 x 10 ⁻⁴	shallow	domestic
→ SW-13	12	6	102	42	pumped	120	2000	3.0 x 10 ⁻⁴	2.0 x 10 ⁻⁴	shallow	domestic
SW-14	12	6	87	55	pumped	175	2000	3.0 x 10 ⁻⁴	2.0 x 10 ⁻⁴	shallow	domestic
SW-27	18	12	80	50	pumped	275	2770	5.5 x 10 ⁻⁴	1.2 x 10 ⁻³	shallow	domestic
SW-28	16	10	83	58	pumped	250	2770	5.5 x 10 ⁻⁴	1.2 x 10 ⁻³	shallow	domestic
SW-29	16	10	85	60	pumped	150	2770	5.5 x 10 ⁻⁴	1.2 x 10 ⁻³	shallow	domestic
SW-30	16	10	82	65	pumped	125	1560	3.6 x 10 ⁻⁴	3.3 x 10 ⁻³	shallow	domestic
SW-31	14	8	102	53	pumped	250	5966	3.0 x 10 ⁻³	2.8 x 10 ⁻³	shallow	domestic
SW-32	16	10	88	70	pumped	120	1560	3.6 x 10 ⁻⁴	3.3 x 10 ⁻³	shallow	domestic
SW-33	16	10	95	62	pumped	200	3570	1.4 x 10 ⁻⁴	4.3 x 10 ⁻³	shallow	domestic
SW-34	16	10	113	70	pumped	250	3570	1.4 x 10 ⁻⁴	4.3 x 10 ⁻³	shallow	domestic
SW-35	16	10	90	63	pumped	200	3570	1.4 x 10 ⁻⁴	4.3 x 10 ⁻³	shallow	domestic
SW-36	16	10	90	60	pumped	200	3570	1.4 x 10 ⁻⁴	4.3 x 10 ⁻³	shallow	domestic
SW-58	16	10	85	48	pumped	275	2500	4.7 x 10 ⁻⁴	3.0 x 10 ⁻⁴	shallow	domestic
SW-59	16	10	80	48	pumped	225	2500	4.7 x 10 ⁻⁴	3.0 x 10 ⁻⁴	shallow	domestic
SW-60	16	10	98	65	pumped	100	2000	1.3 x 10 ⁻⁴	3.0 x 10 ⁻⁴	shallow	domestic
→ SW-61	16	10	80	40	pumped	120	2000	1.3 x 10 ⁻⁴	3.0 x 10 ⁻⁴	shallow	domestic
SW-62	16	10	85	58	pumped	200	2220	1.4 x 10 ⁻⁴	4.0 x 10 ⁻³	shallow	domestic
SW-105	16	10	90	63	pumped	100	2000	1.3 x 10 ⁻⁴	3.0 x 10 ⁻⁴	shallow	domestic
SW-106	16	10	95	68	pumped	140	2000	1.3 x 10 ⁻⁴	3.0 x 10 ⁻⁴	shallow	domestic
SW-107	16	10	84	48	pumped	200	2220	1.4 x 10 ⁻⁴	4.0 x 10 ⁻³	shallow	domestic
V-114	16	10	85	53	pumped	250	8356	2.3 x 10 ⁻⁴	1.0 x 10 ⁻⁴	shallow	domestic
V-115	16	10	85	60	pumped	400	8356	2.3 x 10 ⁻⁴	1.0 x 10 ⁻⁴	shallow	domestic
Total						5,195					

ID. No. 2180863-02

State of Florida
 Department of Environmental Protection
 SANITARY SURVEY REPORT
 for
 Drinking Water Systems

Inspection Date: 6/17/94

I. GENERAL

Plant name PALM CONST WTP #2 County FLUORER
 Plant Owner PALM CONST UTILITY CORP. Person contacted BRUCE BRASS
 Address 2 UTILITY DRIVE Phone 445-3311
 City PALM CONST zip 31037 Operator/No. A 3848
 Population Served est 24000 Operator Phone No. 437-1337
 No. of service connections 10739 Meter in line
 Plant designed by V. Huel GALT, PE. Plant Capacity 2 MGD
 Storage capacity 2.04 M³ Output, avg day 1.67 MGD
 Approval No./date WCA 11431 12/14/90 Daily maximum 1.383 MGD
 Emergency source WTP #01 Emergency power 600kw Diesel
 TYPE OF SERVICE: Community [] Non-community [] Non-transient
 Type of facility: MUNICIPAL
 latitude 29° 26' 30" N longitude 81° 12' 08" W
 Location (provide directions) HWY 100 - 3.4 mi South on Belle
Turn, left on Caledonia Blvd. 50 Caledonia Blvd.

II. SOURCE OF RAW WATER ground No. of wells 5
 surface [] purchased

A. Ground Supplies

	1	2	3	4	5	6	7	8
Well No.	1	2	3	4	5			
year drilled	1990	1990	1990	1990	1990			
depth	335'	260'	320'	250'	260'			
casing depth	109'	108'	105'	107'	101.5'			
casing diameter	12"	12"	12"	12"	12"			
casing material	PVC	PVC	PVC	PVC	PVC			
static water level	7'	10.15'	9.6'	9.45'	10.08'			
strainer								
subject to inundation	no	no	no	no	no			
concrete slab	yes	yes	yes	yes	yes			
salt infiltration	no	no	no	no	no			
check valve	yes	yes	yes	yes	yes			
grouted	yes	yes	yes	yes	yes			
Pump Type	ATW	ATW	ATW	ATW	ATW			
year pump	91	91	91					
capacity (gpm)	333	333	333					
horsepower								
comments	slanted (New) under (W) 23432 107 107 W SERVICE							

III. TREATMENT

A. General

- aeration ~~de-aer~~ lime softening
- chlorination coagulation
- iron removal recarbonation
- filtration fluoridation
- pH adjustment sedimentation
- reverse osmosis membrane filtration
- ion exchange sequestration

B. Aeration

No. of trays N/A capacity _____
 dimensions Rectangular de-aer
 slimes/algae noted iron deposits
 screens satisfactory HS odor
 comments: _____

C. Chemical Use

chemical	feeder type	capacity	ADD COLLECT	DISTRIBUTION
<u>Alumina</u>	<u>Gen 2 feeder</u>	<u>20 GPH</u>	<u>CL CONTACT METER</u>	<u>DISTRIBUTION</u>
<u>H₂SO₄</u>	<u>Pulsor 100</u>	<u>63 GPH</u>	<u>FEED TO</u>	<u>PH ADJUST FOR RO</u>
<u>CaO</u>	<u>Pulsor 100</u>	<u>37 GPH</u>	<u>FEED TO</u>	<u>SCALE INHIBITOR</u>
<u>NaOH</u>	<u>Pulsor 100</u>	<u>17.6 GPH</u>	<u>FEED FOR PUMP</u>	<u>Post RO pH adjust</u>
<u>Cu²⁺</u>	<u>LA 1 Multi-Feed</u>	<u>14.4 GPH</u>	<u>FEED GST</u>	<u>Corrosion Inhibitor</u>

D. Chemical Feeders

- oil on floor chemical spilled
- spare parts kept has repair manuals
- noisy operation chemicals well stocked
- water on floor feeders all work
- excessive vibration bags stored dry have bulk chem storage tanks

N/A E. Coagulation

- settling poor chem dose questionable
- no blanket seen effluent taste & odor
- pinpoint floc color removal good

N/A F. Softening

- spiractor accelerator reaction basin
- floc unstable blanket visible
- feed intermittent settling good
- water leaves clear silica used
- sludge return used coagulant aid
- improper sludge level

N/A G. Fluoridation

- analyses OK feeder works well
- separate storage acid spilled
- dusty enclosure frequent shut downs
- monthly samples OK corrosion evident

N/A H. Filtration

- mudballs present clearwell turbid
- backwash works OK sediment in clearwell
- algae present gallery kept clean

I. Membrane Filtration

pH adjustment _____ chemical used H₂SO₄ / NaOH
 acid feed _____ H₂SO₄
 antiscalant _____ Plecon 100
 polymer _____ Calgon ZrPhy
 conductivity meter pH control alarm/shutdown
 permitted brine disposal
 location of brine disposal _____
 No. of membranes _____
 membrane configuration: _____

clean with NaOH NaEDTA, not citric acid or muriatic

✓ J. Disinfection

- | | | | |
|-------------------------------------|---------------------------|-------------------------------------|--------------------------|
| <input checked="" type="checkbox"/> | air pack OK | <input checked="" type="checkbox"/> | lead washers kept |
| <input checked="" type="checkbox"/> | wrench present | <input checked="" type="checkbox"/> | ammonia kept |
| <input checked="" type="checkbox"/> | fan works <i>open air</i> | <input checked="" type="checkbox"/> | single system |
| <input checked="" type="checkbox"/> | dual system | <input checked="" type="checkbox"/> | automatic change over |
| <input checked="" type="checkbox"/> | leak detector | <input checked="" type="checkbox"/> | loss of capability alarm |
| <input checked="" type="checkbox"/> | test kit OK | <input checked="" type="checkbox"/> | properly chained/stored |
| <input checked="" type="checkbox"/> | ample stock | <input checked="" type="checkbox"/> | repair kit |

Number of feeders 2 capacity 400 feed rate 95#/day - use ~ 30
 Chlorine residual at plant 2.2 in distribution 5.5

comments: as total monochloramines

✓ IV. STORAGE

- ✓ ground storage elevated storage
 hydropneumatic tank clear well Cl₂ contact

tank number	1	2	3	4
capacity (gallons)	41,800	2 MG		
material				
drain capacity	no	yes		
bypass capacity	no	no		
screens		yes		
relief valve	no	no		
condition	GOOD	GOOD		
comments				

✓ V. HIGH SERVICE PUMPS

Number	XPRP (2)	HSPs (2)	(1) 3	4
horsepower	A	25	50	
capacity (gpm)	1500	1050 ca	700	
Model/type	VIT			
comments				

✓ VI. DISTRIBUTION

material PVC, CL, DCA max diam 20" min diam 2 1/4" ~ 1600 hydrants
 operation pressure 65 Fire system yes
 No. of Dead ends present? est 1800 Flushing Log kept? yes
 Are there any cross connections? none known, have COCO
 Are there any sanitary hazards near well? no
 Any leaks suspected? no
 Supply shortages? none
 comments _____

✓ VII. WATER QUALITY REVIEW

A. Chemical

1. lab capability pH chlorine
 fluoride other Cond, DO, pH, Cl, turb all continuous
full lab test set attached.
2. Chems
- | | | | | | |
|-------------------------------------|---------------------|-------|--------------------------|---------------|-----------------|
| <input checked="" type="checkbox"/> | Primary Inorganics | 11/93 | <input type="checkbox"/> | TTHM's | <u>✓</u> |
| <input type="checkbox"/> | Secondary Standards | 11/93 | <input type="checkbox"/> | Group I UC's | 11/93 |
| <input type="checkbox"/> | Turbidity | N/A | <input type="checkbox"/> | Group II UC's | 11/93 |
| <input type="checkbox"/> | VOC's | 7/94 | <input type="checkbox"/> | Pesticides | Cl 11/93 + 2/92 |
| <input type="checkbox"/> | Radionuclides | 11/93 | <input type="checkbox"/> | Asbestos | 11/93 |
| <input type="checkbox"/> | Nitrate | 7/94 | <input type="checkbox"/> | Nitrite | 9/94 |

comments: TTHM monitoring addressed by VM Singer. To be done 9/94

3. Maximum Contaminant Level (MCL) Violations: none.

B. Bacteriological

1. Are bacteriological samples being conducted as required? yes

2. Is current treatment satisfactory? yes

VIII. CONCLUSION

- Facility meets State and Federal minimum requirements
- Supplement information is attached
- The following deficiencies were noted

	Deficiency	Code Reference
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Inspector's Signature: James R. Maher Date: 10/29/94

Title: PE

Approved by: Blair R. Rodriguez Date: 11-2-94
Supervisor (signature)

Plant Schematic:

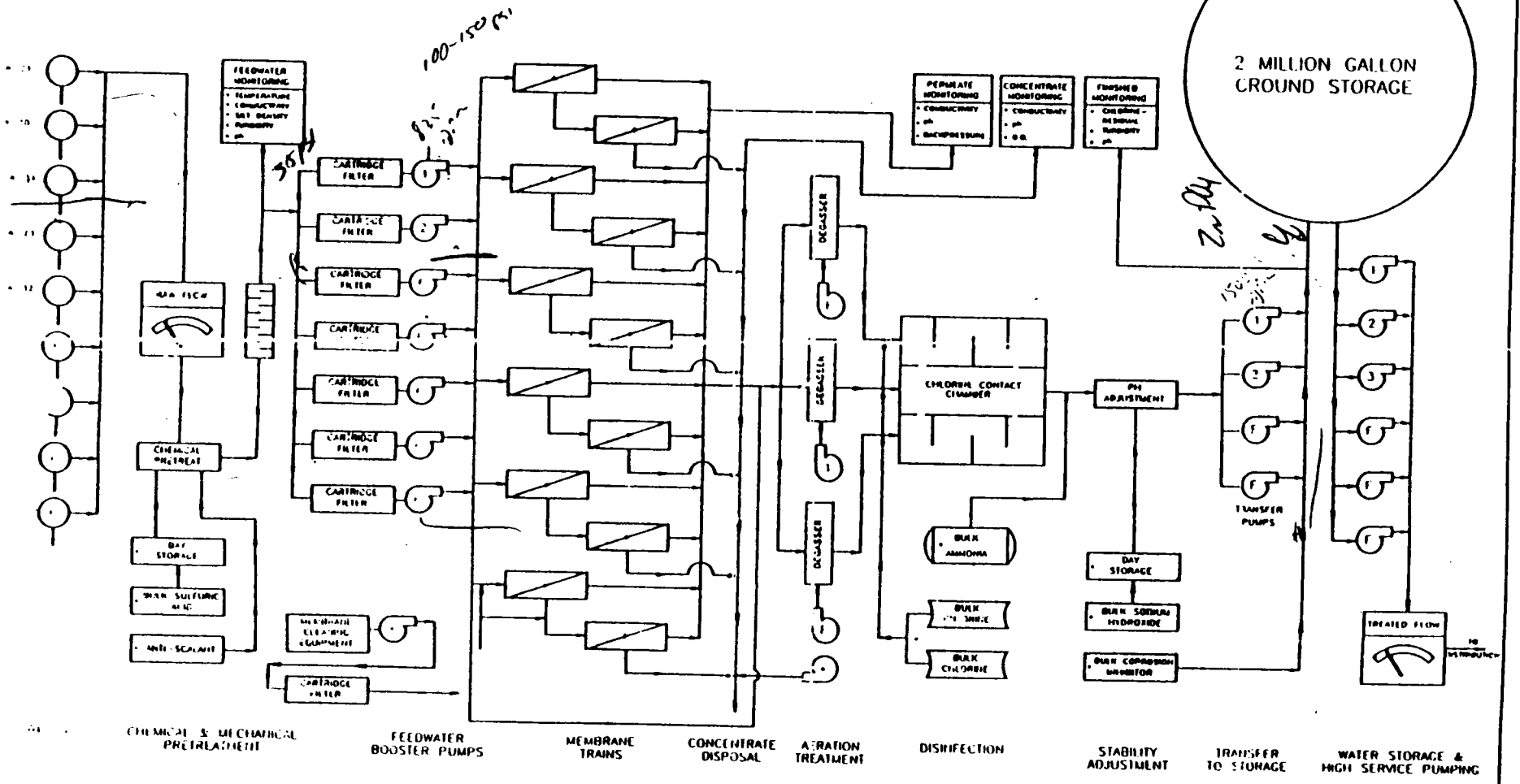
see attached

only highlighted components cleared for use at this time

JRM 7/10/92

*S.8 is best
let pH
and ant scale need*

PALM COAST UTILITY CORPORATION
MEMBRANE WATER SOFTENING FACILITY



- FUTURE - - - DRAFTER NOT NOTIFIED