

State of Florida



Public Service Commission

CAPITAL CIRCLE OFFICE CENTER • 2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA 32399-0850

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

COMMISSION
CLERK

08 AUG 15 PM 2:08

RECEIVED-FPSC

DATE: August 15, 2008
TO: Ann Cole, Commission Clerk - PSC, Office of Commission Clerk
FROM: Stephen B. Fletcher, Public Utilities Supervisor, Division of Economic Regulation
RE: Docket No. 060540-WU, Application for increase in water rates in Pasco County by Colonial Manor Utility Company

Attached is a document for inclusion in the docket file for Docket No. 060540-WU, Application for increase in water rates in Pasco County by Colonial Manor Utility Company.

The document is a letter dated March 21, 2008 addressed to Bart Fletcher from David Schultz along with documentation and engineering maps for Colonial Manor.

DOCUMENT NUMBER-DATE

07354 AUG 15 08

FPSC-COMMISSION CLERK



Water and Wastewater Utility Operations, Maintenance, Engineering, Management

March 21, 2008

Bart Fletcher
Public Service Commission
2450 Shumard Oak Blvd.
Tallahassee, Florida 32399-0850

Dear Mr. Fletcher,

We have attached the following information as our response to the outstanding questions of the PSC as we know them to be at this time. The attached information consist of:

- 1.) A. Rebid Advertisement / Invitation to bid / Bid date extension
B. Solicited Bidders List (Prospective Bidders List(4 bidders)
C. Planned Distribution List (2 bidders)
D. Received Bid – Cimarron Construction, Inc.

- 2.) A. Plan set and contact documents, as approved by FDEP.
B. Engineer estimate with quantities sizes
Note: The construction cost estimate of \$794,458.29 should be changed to reflect the bid amount of \$951,420.

- 3.) Revised FDEP Application to build centralized treatment serving 5 wells includes:

Flow Diagram, Loading Rates, US Filter Cut Sheets (this information details the fact that the treatment unit is a pre-packaged skid mounted unit and is sized to treat one half of the flow volume. The treated flow will be blended with the untreated flow to achieve nitrate levels of the blended water of less than 10mg/l (the MCL). This design allows for the minimum size unit with minimum operating costs to be utilized to reach the desired treatment level. Due to the centralized treatment concept, Colonial Manor will be able to utilize the best combination of its 5 wells (usually only 2 wells at a time) to minimize the influent nitrate level but can treat influent levels as high as 20 mg/l before blended water nitrate levels would reach the MCL of 10 mg/l. DEP has approved this treatment concept.

- 4.) Electric cost increase calculation, (Note: the existing well pumps supply the water pressure to the treatment unit from which the water moves to the storage tank via the same well pump pressure. The additional pumping facility for which the power cost increase is calculated (\$3677.57) moves the water from the storage tank into the distribution system and is actuated by hydrotanks within the distribution system.

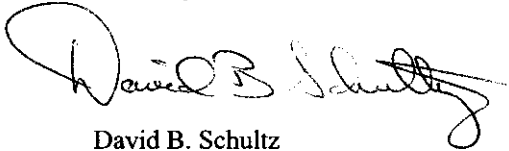
The total power cost for the system is \$7206.00 plus \$3677.57; totaling \$10,883.57, annually plus additional lighting requirements of approximately \$400.00 annually.

U.S. Water Services Corporation

- 5) Chemical Costs with supporting design information.
Total Annual Chemical Costs = \$17,389.70
- 6) Insurance Cost – Colonial Manor Insurance cost is estimated to be \$3000 based upon the current costs for Holiday Utilities of \$2,178.00 (Colonial Manor has 2 times as many customers and will have 3 times the new capital investment - \$300K loan vs. \$1M+ loan).
- 7) Executed Bank Commitment Letter. (Currently being circulated for signature – estimated to be sent to FPSC on or before March 25, 2008).

I trust the attached information will be satisfactory for your use. Please contact our office with any questions you may have and thank you for your guidance and patience in this matter.

Sincerely,



David B. Schultz
Sr. Vice President
U.S. Water Services Corp.

INVITATION TO BID

Colonial Manor Utilities is seeking proposals for the following:

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

Proposals must be sealed and marked "Water Treatment System Modifications" and should be submitted to Keith Keegan, project manager, 4939 Cross Bayou Blvd., New Port Richey, Florida 34652 no later than 2:00 p.m. on Friday, March 14, 2008 at which time they will be opened and read aloud. Proposals received after the time and date specified will not be considered. A recommendation will be announced the following Friday, March 21, 2008.

The work includes the construction of 420 linear feet of security fencing, a 130,000 glass fused steel ground water storage tank, concrete evaporation basin, installation of a 10,000 gallon brine storage tank with feed pumps and piping, nitrate removal system with valves piping and concrete slab, site piping, sodium hypochlorite chemical feed system, high service pumps on a concrete support slab, piping, valves fittings, and controls, system telemetry between wells, and the construction of approximately 3,100 linear feet of 4" DR11 by directional drill method, and 1,540 linear feet of 4" DR11 by directional drill, and approximately 164 linear feet of 6" C900 by open cut.

Each Bidder shall visit the site of the proposed work before submitting the proposal and shall fully acquaint himself with conditions relating to the work so that he may fully understand the scope of work and the difficulties and restrictions attending the execution of the work.

Copies of the Construction Drawings may be obtained from the utility office at 4925 Cross Bayou Blvd., New Port Richey, Florida 34652, Phone: (727) 919-1662, upon presentation of a non-refundable check in the amount of Sixty Dollars (\$60.00), which includes reproduction and handling charges.

The Colonial Manor Utilities reserves the right to reject any or all proposals and to waive minor informalities and irregularities.

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1A

**COLONIAL MANOR UTILITIES
WATER TREATMENT SYSTEM MODIFICATIONS
PASCO COUNTY, FLORIDA**

ADDENDUM NO. 1

(March 13, 2008)

The original Advertisement for Bid, Contract Documents and Technical Specifications for the project noted above are amended as noted in this Addendum.

This Addendum consists of 1 page.

ADDENDUM NO. 1

ITEM NO.

1. The bid opening date has been changed to Wednesday, March 19th 2008 at 4:00 PM.
2. No bid bonding required.
3. The \$60.00 fee for plans has been waived.

END OF ADDENDUM NO. 1

(13.)

Colonial Manor Utilities

Water Treatment System Modifications - Perspective Bidders List

Plan Set #	Name	Address	Phone	Fax	Contact Person	Cell
1	MTM Contractos, Inc.	65560 53rd St., N. Park, Florida 33718	(727) 528-0178		Jeff Stevenson	
2	Clark-Hunt Construction	2165 Logan Street Clearwater, Florida 33765	(727) 441-1559		Janet Chandler	
3	Kamminga & Roodvoets, Inc	5219 Cone Road Tampa, Florida 33610	(813) 823-3031	(813) 628-4490	Mercus Tidy Jr.	
4	Rowland Inc.	6855 102nd Avenue North Pinellas Park, Florida 33782	(727) 545-3815	(727) 546-8464	Don Reich	

(1c)

Colonial Manor Utilities
Water Treatment System Modifications - Plan distribution List

Plan Set #	Name	Address	Phone	Fax
1	RTD Construction, Inc.	41422 Chancey Road Zepherhills, Florida 33540	813-783-9119	
2	Cimarron Construction, Inc.	16176 Cortez Blvd., Brooksville, Florida 34601	(352) 796-3122	
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(W)

Dept. of Environmental Protection

JAN 05 2007

Southwest District

U.S. Water Services Corporation
4939 Cross Bayou Boulevard
New Port Richey, Florida 34652

MERCANTILE BANK
Port Richey, Florida 34668
63-1377/631

US 12636

1/4/2007

PAY TO THE ORDER OF Florida Department of Env. Protection

\$ **1,000.00

One Thousand and 00/100***** DOLLARS

Florida Department of Env. Protection

VOID AFTER 90 DAYS

[Signature]

RECEIVED BY T INC. # 785 1-800-433-8816

MEMO

FDEP PERMIT APPLICATION SUBMITTAL

COLONIAL MANOR UTILITIES WATER TREATMENT SYSTEM
NITRATE REMOVAL SYSTEM (All wells)

PWS NO. 6510355

TABLE OF CONTENTS

Attachment A.....Transmittal Letter

Attachment B.....Site Map

Attachment C.....FDEP Permit Application

Attachment D.....Design Report

Attachment E.....Processes Flow Diagram

Attachment F.....Pre-treatment Filter

Attachment G.....Ion Exchange Filter

Attachment H.....Material Safety Data Sheet

Attachment I.....Engineering Plans

Dept. of Environmental
Protection

JAN 05 2007

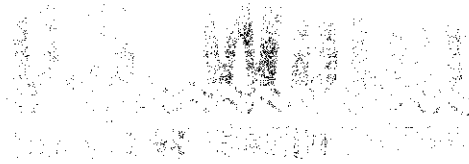
Southwest District



4939 Cross Bayou Boulevard
New Port Richey, Florida 34652

Attachment A

(Cover Letter)



Water and Wastewater Utility Operations, Maintenance, Engineering Management

January 5, 2007

Mr. Steve King, Engineer
Potable Water Permitting
Florida Department of Environmental Protection
3804 Coconut Palm Drive
Tampa, FL 33619-1352

RE: Colonial Manor Utilities – Nitrate Removal
PWS No. 6510355, Wells # 1, 2, 3, 4 and 5
Pasco County, Florida

Dear Mr. King:

Please allow this correspondence to act as a formal request to withdraw the permit application for the proposed improvements for wells 1 and 4. In addition, please find attached one copy of the FDEP permit application package for the above-referenced facility to install a centrally located Nitrate Removal System at well No. 3 and associated system piping. The package includes the following:

1. Application for a Specific Permit to Construct PWS Components (DEP Form 62-555.900(1));
2. Supporting documents and engineering report with specifications;
3. A check in the amount of \$1,000.00 to cover the permit processing.

Please do not hesitate to contact me directly should you have any questions. I can be reached at (727) 848-8292, ext. 230.

Sincerely,

Keith Keegan, P.E.
Project Manager
US Water Service Corporation

KK/kk

Attachment

Cc: Gary Dereemer, U.S. Water
M. Y. Kader, P.E., U.S. Water

Attachment B

(Site Map)

Attachment C
(FDEP Permit Application)



APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

See page 4 for instructions.

I. General Project Information

A. Name of Project: Colonial Manor Utilities Modification - nitrate removal system (all wells).

B. Description of Project and Its Purpose: Addition of a centrally located nitrate removal system to treat raw water from wells 1, 2, 3, 4, and 5. The treatment system improvements would include a 130,000 gallon storage tank, sodium hypochlorite disinfection system, and three high service pumps. Water system improvements would also include upsizing approximately 825 L.F. of 2" W.M. to 6", reconnecting 20 services, installing 3,100 L.F. of 4" HDPE transmission main and 1,540 L.F. of 6" HDPE transmission main by horizontal directional drilling.

C. Does project create a "new system" as described under subsection 62-555.525(1), F.A.C.? Yes, and a completed copy of Form 62-555.900(20), New Water System Capacity Development Financial and Managerial Operations Plan, is attached. No.

D. Location of Project

1. County Where Project Located: Pasco
2. Description of Project Location: Well #3 @ 3508 Hendrix Street, New Port Richey, Pasco County, and system improvements throughout the Colonial Manor subdivision.

3. Latitude and Longitude of Each New Treatment Plant and Each New Raw Water Source (attach additional sheets if necessary):

Name of New Treatment Plant or Raw Water Source	Latitude			Longitude		
Water Treatment Plant No. 1, Section 19, Township 26, Range 16	28°	12'	42"N	82°	44'	16"W
Water Treatment Plant No. 4, Section 19, Township 26, Range 16	28°	12'	40"N	82°	43'	54"W
	°	'	"N	°	'	"W
	°	'	"N	°	'	"W
	°	'	"N	°	'	"W

E. Estimate of Cost to Construct Project: \$763,000.00

F. Estimate of Dates for Starting and Completing Construction of Project: 2/4/2007 - 4/4/2007

G. Applicant

PWS/Company Name: <u>Colonial Manor Utilities</u>		PWS Identification No.:* <u>6510355</u>	
PWS Type:* <input checked="" type="checkbox"/> Community <input type="checkbox"/> Non-Transient Non-Community <input type="checkbox"/> Transient Non-Community <input type="checkbox"/> Consecutive			
Contact Person: <u>Gary Deremer</u>		Contact Person's Title: <u>President</u>	
Contact Person's Mailing Address: <u>4939 Cross Bayou Blvd.</u>			
City: <u>New Port Richey</u>		State: <u>FL</u>	Zip Code: <u>34652</u>
Contact Person's Telephone Number: <u>7278488292</u>		Contact Person's Fax Number: <u>(727) 848-7701</u>	
Contact Person's E-Mail Address: <u>gderemer@uswatercorp.com</u>			

* This information is required only if the applicant is a public water system (PWS).

H. Public Water System (PWS) Supplying Water to Project

PWS Name: <u>Colonial Manor Utilities</u>		PWS Identification No.: <u>6510355</u>	
PWS Type: <input checked="" type="checkbox"/> Community <input type="checkbox"/> Non-Transient Non-Community <input type="checkbox"/> Transient Non-Community <input type="checkbox"/> Consecutive			
PWS Owner: <u>Gary Deremer</u>			
Contact Person: <u>Gary Deremer</u>		Contact Person's Title: <u>President</u>	
Contact Person's Mailing Address: <u>4939 Cross Bayou Blvd.</u>			
City: <u>New Port Richey</u>		State: <u>FL</u>	Zip Code: <u>34652</u>
Contact Person's Telephone Number: <u>7278488292</u>		Contact Person's Fax Number: <u>7278487701</u>	
Contact Person's E-Mail Address: <u>gderemer@uswatercorp.com</u>			

APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

Project Name: Colonial Manor Utilities Modification - nitrate Applicant: Colonial Manor Utilities

I. Public Water System (PWS) that Will Own Project After It Is Placed into Permanent Operation

PWS Name: Colonial Manor Utilities		PWS Identification No.:* 6510355	
PWS Type:* <input checked="" type="checkbox"/> Community <input type="checkbox"/> Non-Transient Non-Community <input type="checkbox"/> Transient Non-Community <input type="checkbox"/> Consecutive			
PWS Owner: Gary Deremer			
Contact Person: Gary Deremer		Contact Person's Title: President	
Contact Person's Mailing Address: 4939 Cross Bayou Blvd.			
City: New Port Richey		State: FL	Zip Code: 34652
Contact Person's Telephone Number: 7278488292		Contact Person's Fax Number: 7278487701	
Contact Person's E-Mail Address: gderemer@uswatercorp.com			

* This information is required only if the owner/operator is an existing PWS.

J. Professional Engineer(s) or Other Person(s) in Responsible Charge of Designing Project*

Company Name: U.S. Water Services Corporation		Title(s) of Designer(s): Director of Engineering	
Designer(s): Mohammed Kader, P.E.			
Qualifications of Designer(s):			
<input checked="" type="checkbox"/> Professional Engineer(s) Licensed in Florida – License Number(s): FL Reg. # 45129			
<input type="checkbox"/> Public Officer(s) Employed by State, County, Municipal, or Other Governmental Unit of State†			
<input type="checkbox"/> Plumbing Contractor(s) Licensed in Florida – License Number(s):^			
Mailing Address of Designer(s): 4939 Cross Bayou Boulevard			
City: New Port Richey		State: FL	Zip Code: 34652
Telephone Number of Designer(s): (727) 848-8292		Fax Number of Designer(s): (727) 848-7701	
E-Mail Address(es) of Designer(s): mkader@uswatercorp.com			

* Except as noted in paragraphs 62-555.520(3)(a) and (b), F.A.C., projects shall be designed under the responsible charge of one or more professional engineers licensed in Florida.

† Attach a detailed construction cost estimate showing that the cost to construct this project is \$10,000 or less.

^ Attach documentation showing that this project will be installed by the plumbing contractor(s) designing this project, documentation showing that this project involves a public water system serving a single property and fewer than 250 fixture units, and a detailed construction cost estimate showing that the cost to construct this project is \$50,000 or less.

II. Certifications

A. Certification by Applicant

I am duly authorized to sign this application on behalf of the applicant identified in Part I.G of this application. I certify that, to the best of my knowledge and belief, this project complies with Chapter 62-555, F.A.C., and provides assurance of compliance with Chapter 62-550, F.A.C. I also certify that construction of this project has not begun yet.

	1/5/07	Gary Deremer	President
Signature and Date		Printed or Typed Name	Title

B. Certification by PWS Supplying Water to Project

I am duly authorized to sign this application on behalf of the PWS identified in Part I.H of this application. I certify that said PWS will supply the water necessary to meet the design water demands for this project. I certify that, to the best of my knowledge and belief, said PWS's connection to this project will not cause said PWS to be, or contribute to said PWS being, in noncompliance with Chapter 62-550 or 62-555, F.A.C. I also certify that said PWS has reviewed the preliminary design report or drawings, specifications, and design data for this project and that said PWS considers the connection(s) between this project and said PWS acceptable as designed.

• Name(s) of Water Treatment Plant(s) to Which this Project Will Be Connected: Colonial Manor Utilities

• Total Permitted Maximum Day Operating Capacity of Plant(s), gpd: 386,000

• Total Maximum Day Flow at Plant(s) as Recorded on Monthly Operating Reports During Past 12 Months, gpd: 184,000

	1/5/07	Gary Deremer	President
Signature and Date		Printed or Typed Name	Title

APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

Project Name: Colonial Manor Utilities Modification - nitrate	Applicant: Colonial Manor Utilities
---	-------------------------------------

C. Certification by PWS that Will Own Project After It Is Placed into Permanent Operation

I am duly authorized to sign this application on behalf of the PWS identified in Part I.I of this application. I certify that said PWS will own this project after it is placed into permanent operation. I also certify that said PWS has reviewed the preliminary design report or drawings, specifications, and design data for this project and that said PWS considers this project acceptable as designed.

	Gary Deremer	President
Signature and Date	Printed or Typed Name	Title

D. Certification by Professional Engineer(s) in Responsible Charge of Designing Project*

I, the undersigned professional engineer licensed in Florida, am in responsible charge of preparing the preliminary design report or drawings, specifications, and design data for this project. I certify that, to the best of my knowledge and belief, the design of this project complies with Chapter 62-555, F.A.C., and provides assurance of compliance with Chapter 62-550, F.A.C.

Signature, Seal, and Date: PE # 45129 1-7-2007
Printed/Typed Name: Mohammed Kader, P.E.
License Number: 45129
Portion of Engineering Document(s) for Which Responsible: 100%

Signature, Seal, and Date:
Printed/Typed Name:
License Number:
Portion of Engineering Document(s) for Which Responsible:

Signature, Seal, and Date:
Printed/Typed Name:
License Number:
Portion of Engineering Document(s) for Which Responsible:

Signature, Seal, and Date:
Printed/Typed Name:
License Number:
Portion of Engineering Document(s) for Which Responsible:

** Except as noted in paragraphs 62-555.520(3)(a) and (b), F.A.C., projects shall be designed under the responsible charge of one or more professional engineers (PEs) licensed in Florida. If this project is being designed under the responsible charge of one or more PEs licensed in Florida, Part II.D of this application shall be completed by the PE(s) in responsible charge. If this project is not being designed under the responsible charge of one or more PEs licensed in Florida, Part II.D does not have to be completed.*

APPLICATION FOR A SPECIFIC PERMIT TO CONSTRUCT PWS COMPONENTS

INSTRUCTIONS: This application shall be completed and submitted by persons proposing to construct or alter public water system components unless such proposed construction or alteration is permitted under the Department of Environmental Protection's (DEP's) "General Permit for Construction of Water Main Extensions for Public Water Systems," in which case Form 62-555.900(7) is to be completed and submitted, or under the DEP's "General Permit for Construction of Lead or Copper Corrosion Control, or Iron or Manganese Sequestration, Treatment Facilities for Small or Medium Public Water Systems," in which case Form 62-555.900(18) is to be completed and submitted. Complete and submit one copy of this application to the appropriate DEP District Office or Approved County Health Department (ACHD) along with payment of the proper application processing fee and one copy of the following information:

- either a preliminary design report or drawings, specifications, and design data (the preliminary design report or drawings, specifications, and design data shall contain all pertinent information required under subsection 62-555.520(4), F.A.C.); and
- the Florida Public Service Commission (FPSC) certificate of authorization to provide water service if the project involves construction of a new public water system subject to the jurisdiction of the FPSC.

All information provided on this application shall be typed or printed in ink. Application processing fees are listed in paragraph 62-4.050(4)(n), F.A.C. Checks for application processing fees shall be made payable to the Department of Environmental Protection or to the appropriate ACHD. Preliminary design reports, drawings, specifications, and design data prepared under the responsible charge of one or more professional engineers licensed in Florida shall be signed, sealed, and dated by the professional engineer(s) in responsible charge. **NOTE THAT A SEPARATE APPLICATION AND A SEPARATE APPLICATION PROCESSING FEE ARE REQUIRED FOR EACH NON-CONTIGUOUS PROJECT.***

** Non-contiguous projects are projects that are neither interconnected nor located nearby one another (i.e., on the same site, on adjacent streets, or in the same neighborhood).*

Attachment D
(Design Report)

DESIGN REPORT Nitrate Removal Project

Prepared for:

**Colonial Manor Utilities
Wells No. 1, 2, 3, 4 and 5
PWS #6510355
Water Treatment Plant
Pasco County, Florida**

Prepared by:



4939 Cross Bayou Blvd.
New Port Richey, Florida 34652

January 5, 2007

1.0 BACKGROUND

Colonial Manor Utilities is a privately-owned utility located in western Pasco County, Florida. The limits of the service area and the lots that are included within the boundary are depicted on the attached site plans under Attachment B.

The potable water service area for Colonial Manor Utilities covers an area of approximately 162.4 acres. The present customer service area includes 702 customers. This is due to the fact that several of the smaller residential parcels have been combined under common ownership while other parcels have been combined as light commercial and professional office spaces. A summary of the users, based on land use type, is given below.

Table 1-1
Summary of Water Users

LAND USE	NUMBER OF UNITS
Single Family Residential	687
Light Commercial (Strip Centers, Churches, Restaurants, etc.)	14
Professional Offices (Doctors, Dentists, etc.)	1
TOTAL:	702

Most of the existing single family residential are older units dating back to the mid 1950's. The current demographics within the limits of the Colonial Manor's service area include a mixture of retirees and younger family groups. A limited number of multi-family structures, professional office spaces and light commercial properties also exist. Based on the most recent six-month period of record ending June 30, 2005, the average daily water usage is approximately 114,555 gpd.

All the homes within the Colonial Manor community (a total of 702 connections) are currently served by individual on-site (septic tank/drainfield) sewage treatment and disposal systems (OSTDS).

2.0 EXISTING WATER SUPPLY

Colonial Manor Utilities currently has a wellfield with five production wells known as Well #1, Well #2, Well #3, Well #4 and Well #5. The locations of the wells are shown on the attached plans under Attachment B. Well #5 is not in use.

The SWFWMD regulates the total allotted withdrawal quantity from the wellfield under SWFWMD Water Use Permit No. 203677.04. The water use permit allows a peak monthly withdrawal of 293,000 gallons per day from the wellfield with an annual average daily withdrawal of 195,000 gallons per day.

3.0 PROPOSED ION EXCHANGE TREATMENT SYSTEM

3.1 Ion Exchange Process

Ion exchange is a process where an undesirable ion is exchanged or substituted for a more desirable ion. Raw water, containing the undesirable ion (contaminant ion), is passed through a bed of ion exchange resin beads which have exchangeable, ionic sites on a solid support or lattice. The ionic sites are either cationic (positively charged) or anionic (negatively charged). Exchange of ions occurs during passage of water. The undesirable ion is retained on the resin, and after the resin is exhausted, i.e., when all exchangeable ions are exchanged with the passing water and there are no ions left to exchange with the contaminant ions, the resin is "regenerated" by passing a strong solution containing the desirable ions through the resin to displace the undesirable ions held by the resin.

3.2 Anion Exchange

Since the contaminant ion is nitrate, *Dowex 1*, high capacity, strong base anion exchange resin with very good mechanical and chemical resistance is chosen to remove nitrate ions from the raw water supply. It meets NSF/ANSI Standard 61 for use in drinking water. An anion exchange resin is a resin has exchangeable anions (negatively charged ions), associated with fixed positive charge sites in the resin, that can be replaced by other negatively charged ions.

3.2.1.1 Operating Conditions

The proposed treatment system is designed to treat 50% of produced raw water. Process flow diagram is attached under Attachment E

3.2.1.2 Pretreatment

In order to ensure proper operation of the treatment system and reduce or eliminate the need for resin bed backwashes due to particulate build up, we are proposing the installation of bag filters after the well head to treat the entire system flow. The bags used in the pre-filtration will have a pores size of 5 micron. Information on the bag filter is attached under Attachment F

3.2.1.4 Nitrate-Removal Tanks

A 42-inch diameter nitrate treatment tank with an automatic multi-port control valve is proposed. Information on the ionic exchange resin and containment vessel is contained within Attachment G. Water from the wells will be split between the treatment system and a bypass leg. After treatment, the water will be combined. The treatment system is expected to treat 50% of the flow from the wells.

The following are the operating parameters for each tank:

- | | |
|---------------------------------|-------------------------------|
| 1. Tank Diameter | 42-inches |
| 2. Tank Construction | Fiberglass Reinforced Plastic |
| 3. NSF Certification on Lining | NSF61 |
| 4. Maximum Tank Pressure Rating | 150 PSIG |
| 5. Volume of Media Each Tank | 25 ft ³ |

6. Service Flow Rate	4 gpm/ft ³
7. Capacity Rate gpm/ft ²	10 gpm/ft ²
8. Projected System Throughput	57,225 gal.
9. Bed Depth	31-inches

When the resin in the unit has treated the set-point water volume, the automatic control valve will remove the vessel from service, and the regeneration cycle will begin. Completion of the regeneration steps allows the vessel to be returned to the service mode.

This equipment at the facility is at an elevation above the 100-year flood zone. All equipment is either designed for outdoor exposure or is installed in a waterproof enclosure.

The potable water supply facilities are secured in a locked six-foot high fenced area.

Design Calculations

DOWEX 1 resin used in one tank = 25 ft³

Tank diameter (d) d = 42-inches

Flow = 100 gpm

Surface area $A_s = \Pi \times d^2/4 = 3.5 \text{ ft}^2$

$$A_s = 3.14 \times 3.5^2/4 = 9.6 \text{ ft}^2$$

Surface loading rate = flow/ A_s

$$100 \text{ gpm}/9.6 \text{ ft}^2 = 10 \text{ gpm}/\text{ft}^2$$

$$\text{Flow rate} = 100 \text{ gpm}/25 \text{ ft}^3 = 4 \text{ gpm}/\text{ft}^3$$

Dow recommends 2-4 gpm/ft³, Okay

Determine Ion exchange (I/X) resin nitrates removal capacity:

Converting to equivalents as CaCO₃

$$\text{Nitrates } 14 \text{ mg/l} \times 3.57 = 50 \text{ mg/l as CaCO}_3$$

$$\text{Sulfate} = 32 \text{ mg/l} \times 1.04 = 34 \text{ mg/l as CaCO}_3$$

Results of model = 2289 gal/ft³ resin throughput, regenerating with 6 lbs/ft³ NaCl.

Total run length per tank: 2,289 gal/ft³ resin x 25 ft³ = 57,225 gal/run

Attachment E

(Process Flow Diagram)

10

**BID PROPOSAL
COLONIAL MANOR UTILITIES-WATER TREATMENT SYSTEM MODIFICATIONS
BID PROPOSAL**

Page 1 of 2

**TO: Colonial Manor Utilities
4939 Cross Bayou Blvd.
New Port Richey, Florida 34652**

**Phone: (727) 848-8292
Fax: (727) 848-7701**

PROPOSAL FOR:

The work includes the construction of 420 linear feet of security fencing, a 130,000 gallon glass fused steel ground water storage tank, concrete evaporation basin, installation of a 10,000 gallon brine storage tank with feed pumps and piping, nitrate removal system with valves piping and concrete slab, site piping, sodium hypochlorite chemical feed system, high service pumps on a concrete support slab, piping, valves fittings, and controls, system telemetry between wells, and the construction of approximately 3,100 linear feet of 4" DR11 by directional drill method, and 1,540 linear feet of 6" DR11 by directional drill, and approximately 164 linear feet of 6" C900 by open cut with 20 service connections.

All work shall be performed as indicated on the Drawings titled "Colonial Manor Utilities - Water Treatment System Modifications, Pasco County, Florida" and the attached technical specifications prepared by U.S. Water Services Corporation.

SUBMITTED BY:

CIMARRON CONSTRUCTION INC
Company Name

16176 Cortez Blvd
Address

Brooksville, FL 34601
City & State, Zip

352 796 3122
Phone

Herein after called the "Bidder".

The Bidder declares that he has examined the site and informed himself fully in regard to all conditions pertaining to the work.

The Bidder proposes and agrees, if this proposal is accepted, to enter a written Contract furnished by the City of Port Richey and to furnish all equipment, materials, labor and services required to complete the work.

BID PROPOSAL (continued)

Page 2 of 2

The Bidder hereby agrees to complete the work within 90 consecutive calendar days of entering the written contract and within 45 consecutive calendar days of starting work.

Definitions

1. **Furnish:** To supply necessary materials and equipment at the project site.
2. **Install:** To place and/or assemble furnished materials and equipment in position for the intended use.
3. **Provide:** The act of both furnishing and installing.

BID PROPOSAL

<u>Bid Item & Description</u>	<u>Estimated Quantity</u>	<u>Bid Price</u>
1. Raw Water Transmission Mains Per Specifications	Lump Sum	\$ <u>135,000⁰⁰</u>
2. Treatment System Improvements Per Specifications	Lump Sum	\$ <u>663,895⁰⁰</u>
3. Controls & Telemetry Per Specifications	Lump Sum	\$ <u>107,525⁰⁰</u>
4. Potable Water Line Replacement Per Specifications	Lump Sum	\$ <u>45,000⁰⁰</u>
	Total Bid	\$ <u>951,420⁰⁰</u>

The Owner reserves the right to reject any or all proposals and to waive minor informalities and irregularities.

Mark Seleske General Manager
Name & Title (Print)

M. Seleske
Signature

3/19/08
Date

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

BID FORM

BIDDER: CIMARRON CONSTRUCTION INC
 PROJECT: COLONIAL MANOR UTILITIES
 DATE: 3/19/08

THIS BID IS SUBMITTED TO:

Colonial Manor Utilities
 Attn: Keith Keegan
 4939 Cross Bayou Blvd.
 New Port Richey, Florida 34652

1. The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in the Bid and in accordance with the other terms and conditions of the Contract Documents.
2. BIDDER accepts all of the terms and conditions of the Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid Security. This Bid will remain open for ninety (90) days after the day of Bid opening. BIDDER will sign and submit the Agreement with Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of OWNER'S Notice of Award.
3. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:
 - a. BIDDER has examined copies of the Invitation to Bid, Instruction to Bidders, all the Contract Documents and the following addenda (receipt of all which is hereby acknowledged):

DATE	ADDENDUM NUMBER
<u>3/13/08</u>	<u>#1</u>
_____	_____
_____	_____

- b. BIDDER has examined the Contract Documents, the site and locality where the Work is to be performed, the legal requirements (Federal, State and Local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as BIDDER deems necessary.
- c. BIDDER has contacted local governments and agencies where the Work is to take place and determined all required permits, licenses and fees.
- d. BIDDER has obtained and reviewed all such examinations, investigations, explorations, tests and studies which pertain to the subsurface or physical conditions at the site or otherwise, and which may affect the cost, progress, performance or furnishing of the Work as BIDDER considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by BIDDER for such purposes.

(BID FORM)

(BF - 1)

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

- e. BIDDER has reviewed and checked all information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data with respect of said Underground Facilities are or will be required by BIDDER in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents.
- f. BIDDER has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- g. BIDDER has given ENGINEER written notice of all conflicts, errors or discrepancies that is has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER.
- h. The Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
4. a. BIDDER agrees to perform all the Work described in the Contract Documents, subject to adjustments as provided therein, for the Prices BIDDER provided on the Price Schedule attached.
- b. If the Work is to be performed on a "unit price" basis, BIDDER understands and agrees that the unit quantities shown on the Bid Form Unit Price Schedule are approximate only, not guarantees and are subject to either increase or decrease; that should the quantities of any of the items of Work be increased, BIDDER will perform the additional Work at the unit prices set out herein; that should the quantities be decreased, final payment shall be made on actual quantities completed at the unit prices; that it will make no claims for anticipated profits for any decrease in the quantities; that final quantities installed shall be determined by the ENGINEER upon completion of the Work; and that OWNER may elect to construct only a portion of the Work covered by the Contract Documents and in such event, BIDDER will perform that portion of the Work for which BIDDER is awarded a Contract at the unit prices quoted herein.
5. a. BIDDER agrees that the Work will be substantially complete within 45 calendar days from the date when the Contract Time commences to run as provided in paragraph 1.38 of the General Conditions, and completed and ready for final payment within 70 calendar days from the date when the Contract Time commences to run.
- b. BIDDER accepts the provisions of the Agreement regarding liquidated damages in the event of failure to complete the Work on time.
6. The following documents are attached to and made a condition of this Bid:
- a. Required Bid Security in the form of Bid Bond.
- b. Price Schedule.
- c. Schedule of Subcontractors.
- d. Schedule of Suppliers, Equipment and Materials.
- e. Legal Status of Bidder.

(BID FORM)

(BF - 2)

COLONIAL MANOR UTILITIES ~ WATER TREATMENT SYSTEM MODIFICATIONS

LIST OF SUBCONTRACTORS

List each subcontractor to be used on the Project:

1.	Name of Firm	_____ <i>undetermined</i> _____
	Address	_____
	Work to be Performed	_____
2.	Name of Firm	_____
	Address	_____
	Work to be Performed	_____
3.	Name of Firm	_____
	Address	_____
	Work to be Performed	_____
4.	Name of Firm	_____
	Address	_____
	Work to be Performed	_____
5.	Name of Firm	_____
	Address	_____
	Work to be Performed	_____
6.	Name of Firm	_____
	Address	_____
	Work to be Performed	_____

Failure to complete the above form shall be sufficient cause for Bid rejection.

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

**SWORN STATEMENT PURSUANT TO SECTION 287.087
FLORIDA STATUTES, ON DRUG-FREE WORKPLACE**

THIS FORM MUST BE SIGNED AND RETURNED WITH THE BID.

Preference must be given to contractors submitting certification with their bid or proposal, certifying they have a drug-free workplace in accordance with Florida Statutes, Section 287.087. This requirement affects all public entities of the State and became effective January 1, 1991.

Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing ties bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection 1.
4. In the statement specified in subsection 1., notify the employees that as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or *nolo contendere* to, any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace, no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfactory participation in, a drug abuse assistance or rehabilitation program as such is available in the employee's community, by and employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As a person authorized to sign this statement, I certify that this firm complies with the above requirements.

Mark Selan
Contractor's signature

Mark Selan
Print Name

3/19/08
Date

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

SCHEDULE OF SUPPLIERS, EQUIPMENT AND MATERIALS

List suppliers and Manufacturers to be used on the Project:

	Description	Supplier	Manufacturer	Model
1.	PIPE & FITTINGS	Ferguson's	ISCO / Fred	
2.	NITRATE SYSTEM	SIEMENS	SIEMENS	
3.	TANK		AQUASTORE	
4.	High Service Pump	Barnes's Pumps	AURORA PUMPS	
5.	Chemical Feed system		Spinner	
6.				
7.				
8.				
9.				
10.				

Failure to complete the above form shall be sufficient cause for Bid rejection.

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

The name, titles, and home address of all persons who are officers or Partners in the organization are as follows:

NAME AND TITLE

HOME ADDRESS

Mark Seleska
General Manager

24266 McCaw Rd
Brooksville, FL 34601

Signed and Sealed this 19 day of March

By Mark Seleska

Printed Name Mark Seleska

Title General Manager

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. [Indicate which statement applies.]

___ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

___ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

___ The entity submitting this sworn statement, or one or more of its officers, directors, executive, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vender list. [Attach a copy of the final order]

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

Mark Seltske
[Signature]

3/19/08
[Date]

STATE OF _____

COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority, Mark Seltske
[Name of individual signing]

who, after first being sworn by me, affixed his/her signature in the space provided above this _____ day of _____, 20____.

Robert Cann
~~NOTARY PUBLIC~~ WITNESS

My commission expires: Robert Cann

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

**SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a),
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES**

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to COLONIAL MANOR UTILITIES
 [Print name of the public entity]

by Mark Seleska General Manager
 [Print individual's name and title]

for CIMARRON CONSTRUCTION INC.
 [Print name of entity submitting sworn statement]

whose business address is 16176 Cortez Blvd Bradenville, FL 34609

and (if applicable) its Federal Employer Identification Number (FEIN) is 500200531

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: _____)

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or misrepresentation.
3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or *nolo contendere*.
4. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:
 1. A predecessor or successor of a person convicted of a public entity crime; or
 2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or pooling of equipment or income among persons when not for fair market value under an arms length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.
5. I understand that a "person" as defined in Paragraph 287.133(1)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

COLONIAL MANOR UTILITIES - WATER TREATMENT SYSTEM MODIFICATIONS

- 7. The terms used in this Bid which are defined in the General Conditions included as part of the Contract Documents have the meanings ascribed to them in the General Conditions.
- 8. BIDDER'S Florida Contractor's License Number is CWC 1223985
- 9. BIDDER covenants that it is qualified to do business in the State of Florida and has attached evidence of BIDDER'S qualifications to do business in the State of Florida.
- 10. The prices contained in this Bid Proposal shall include all costs necessary to provide the Work described in the Contract Documents, including, but not limited to, labor, materials, equipment, overhead, profit and insurance.

BIDDER understands that the OWNER reserves the right to reject any or all Bids in whole or in part, with or without cause, to waive any technical errors and informalities or to accept the Bid which in its judgment best serves the public interest.

BIDDER agrees that this Bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving Bids.

Upon receipt of Notice of Award, BIDDER will execute the formal contract attached and deliver it with a Public Construction Bond and a Certificate of Insurance evidencing conformance with the contract requirements as required by Article 5 of the General Conditions within fifteen (15) days. The Bid Security shall become the property of OWNER in the event the executed Contract, Public Construction Bond and Certificate of Insurance are not delivered within the time above set forth, as liquidated damages for delay and any additional expenses to OWNER caused thereby.

By submission of this Bid, each BIDDER certifies, and in the case of a Joint Bid each party thereto certifies as to his own organization, that this Bid has been arrived at independently, without consultation, communication or agreement as to any matter relating to this Bid with any other BIDDER or with any competition.

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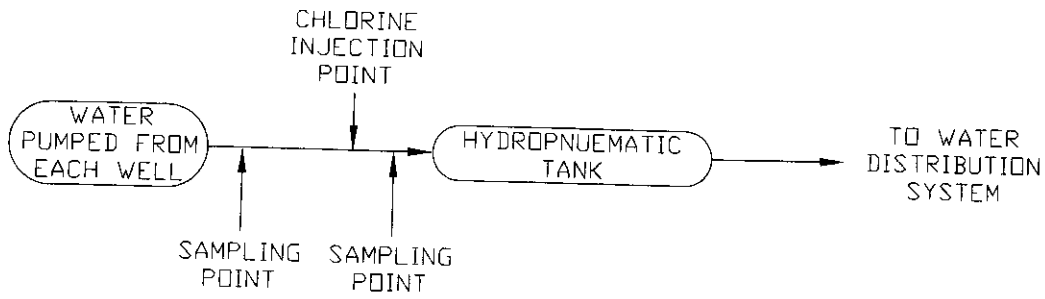
U.S. Water Services Corporation

COLONIAL MANOR UTILITIES

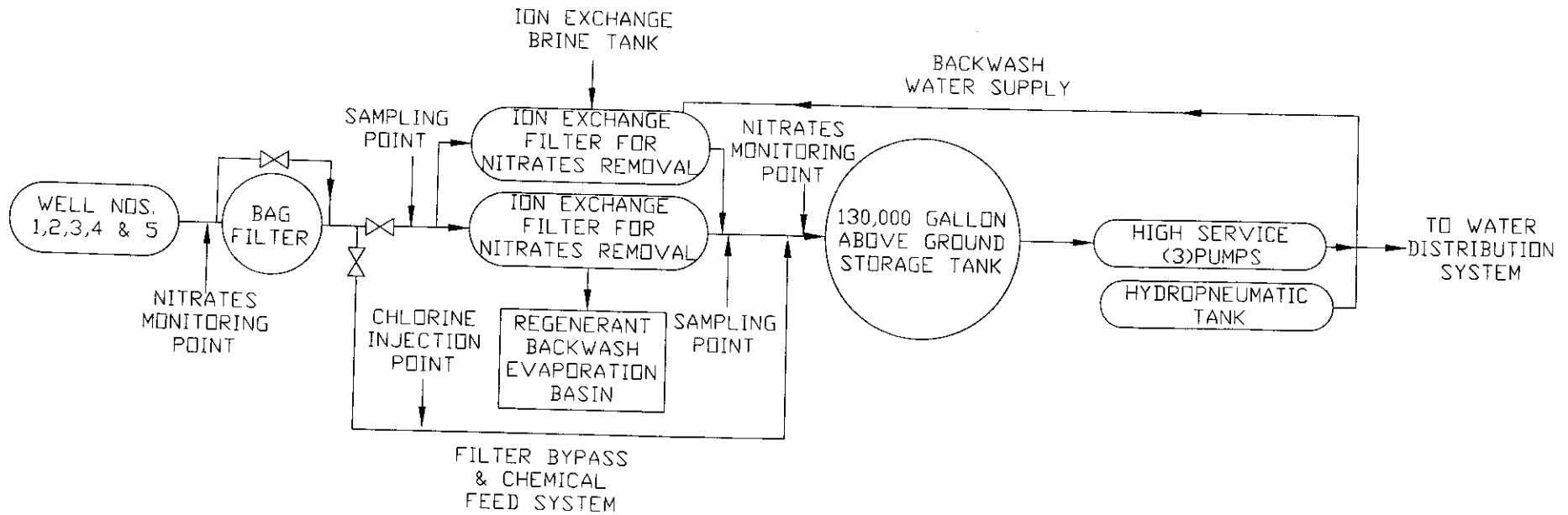
OPTION III - GROUND STORAGE & HIGH SERVICE PUMPS

PROPOSED NITRATE REMOVAL SYSTEM

ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE (\$)	TOTAL PRICE (\$)
Raw Water Transmission Line				
4" Directional Drill DR11	3,096.00	LF	18.00	55,728.00
6" Directional Drill DR11	1,540.00	LF	21.00	32,340.00
6" Raw Water Mains	164.00	EA	17.00	2,788.00
4" & 6" M/J R/W G/V w/ Box	15.00	EA	643.00	9,645.00
6" 90's	13.00	EA	650.00	8,450.00
6" Tee's	4.00	EA	494.00	1,976.00
4" & 6" P/V Mega w/ Acc.	41.00	EA	66.14	2,711.74
4" x 6" Increaser	5.00	EA	268.00	1,340.00
6" HDPE x MJ Adaptors	23.00	EA	73.35	1,687.05
Well Tie In	5.00	EA	2,000.00	10,000.00
Upgrade Existing Water Distribution System				
Replace existing W.M. with 6" HDPE by HDD	825.00	EA	21.00	17,325.00
Fittings	1.00	LS	3,594.00	3,594.00
Water Service Replacement	20.00	EA	125.00	2,500.00
Above Ground Storage Tank				
130,000-gal-glass-fused-to-steel water storage tank	1.00	EA	167,597.00	167,597.00
Tank level switches, electrical controls, and appurtenances	1.00	EA	10,000.00	10,000.00
Soil investigations and site preparation	1.00	EA	2,500.00	2,500.00
Pumping System				
High Services Pumps and Control Panel Package 30 h.p. 500-gpm High Service Pump, (2) 20 h.p. 200 gpm High Service Pumps, Stainless Steel Control Panel	1.00	EA	31,407.71	31,407.71
Site Work - Includes labor to install equipment	1.00	EA	40,000.00	40,000.00
Flow metering, yard piping, valves for pumping equipment	1.00	EA	19,556.00	19,556.00
Plant Lighting	1.00	EA	2,352.94	2,352.94
Concrete Access Road and Pump Slab	9.00	CY	900.00	8,100.00
Security Fencing	1.00	EA	5,895.00	5,895.00
6" PVC Onsite Influent Piping	110.00	LF	17.00	1,870.00
6" Flanged Above Ground w/Fittings	50.00	LF	17.00	850.00
8" PVC Influent & Discharge Piping	350.00	LF	20.00	7,000.00
Disinfection and Pressure Testing				
Disinfection and Pressure Testing	1.00	EA	3,500.00	3,500.00
Chlorination System				
Chemical Feed Pumps	2.00	EA	325.00	650.00
Chemical Feed Piping	80.00	LF	17.00	1,360.00
Nitrate Removal System				
Siemens Equipment	1.00	LS	59,947.00	59,947.00
Concrete Support Slab	3.00	CY	900.00	2,700.00
Brine Discharge Piping	45.00	LF	14.00	630.00
Backwash Piping, Valves & Fittings	65.00	LF	35.00	2,275.00
Nitrate Monitors	2.00	EA	9,975.00	19,950.00
Additional Control Valves	2.00	EA	95.00	190.00
Additional Flow Meters	2.00	EA	650.00	1,300.00
Brine Storage Tank	1.00	EA	10,000.00	10,000.00
Evaporation Basin	19.00	CY	900.00	17,100.00
Evaporation Basin Cover	1.00	LS	9,000.00	9,000.00
Telemetry System & Electrical				
Antenna and Controls at Each Facility	1.00	EA	35,000.00	35,000.00
Electrical Service to New Pumps	1.00	EA	6,000.00	6,000.00
Subtotal				616,815.44
Overhead & Profit (15%)				92,522.32
Total				709,337.76
Design & Permitting (8% of Total)				56,747.02
Project Management (PM) (4% of Total)				28,373.51
Total Plus Design and PM				794,458.29
Grand Total				794,458.29



EXISTING TREATMENT SYSTEM



PROPOSED TREATMENT SYSTEM

ENGINEER	DATE	SCALE	PROJECT

COLONIAL MANOR UTILITY
 PROPOSED NITRATE REMOVAL SYSTEM
 PROCESS FLOW CHART
 PASCO COUNTY FLORIDA

4938 CROSS BAYOU BOULEVARD
 NEW PORT RICHEY, FL 34862
 (727) 848-9282 (727) 848-7701



DATE	BY
2	8
000-00.00	

Attachment F
(Pre-treatment Filter)

Replacement Cartridges For Hurricane® Filter housings

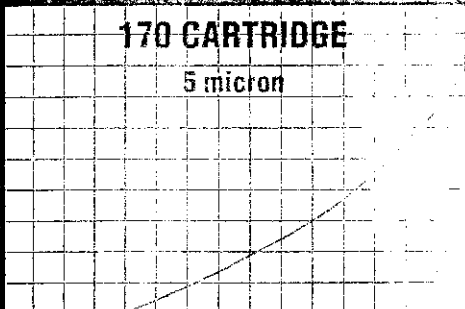
SEDIMENT CARTRIDGES

100 Sediment Cartridges are rated for temperatures to 140°F (60°C). Polypropylene filter media is cleanable and cartridges are compatible in most applications and micron ratings. Cartridges can be used in fluids with pH of 4 to 11. Packaged one per carton, Hurricane® Cartridge are capable of 50 psi ΔP.



170 CARTRIDGE

5 micron



50 60 70 80 90 100 110 120 130 140 150
Flow Rate (GPM) * Clean Water

Cartridge Product Code	Nominal Micron	Cartridge Dimensions			Ship Wt./Ctn. (1 Cartridge)
		L	x OD	x ID	
HC/170-05	0.35	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-1	1	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-5	5	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-10	10	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-20	20	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-50	50	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-100	100	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-150	150	30-3/4"	7-3/4"	3" FPT	10 lbs.
HC/170-CLEAN**	N.P.	30-3/4"	7-3/4"	3" FPT	10 lbs.

Poly-Pleat™ Cartridges are designed for drinking water applications to remove suspended matter and Giardia Cysts and when one micron absolute rated filtration is required. Cartridges are rated for temperatures to 140°F (60°C). * Polypropylene filter media offers compatibility with many aggressive chemicals. Check compatibility charts for PVC center tubes and end caps. *Temperature limits vary and depend on pressure and time under load.

Cartridge Product Code	Absolute Micron	Cartridge Dimensions			Ship Wt./Ctn. (1 Cartridge)
		L	x OD	x ID	
PP-HC/170-1	1	30-3/4"	7-3/4"	3" FPT	10 lbs.

ACTIVATED CARBON WITH 5 MICRON PREFILTER



**Hurricane®
A/C Cartridge**

Cartridge Product Code	Capacity (gal)	Relative Reduction
HC/170-05	100,000	99.9% @ 15 GPM

Results may vary and depend on flow rate and other factors.

Not for use in any fluid application involving carbon media. * As a result of the high flow rates, recommended flow rates to allow for longer contact time.



Harmco Filtration Products

4086 North Palm Beach Road, Ft. Lauderdale, FL 33308

Phone: (954) 344-2288 • Toll-free: (800) 344-2288 • Fax: (954) 344-2274 • E-mail: sales@harmco.com





NSF Product and Service Listings

These Listings were Last Updated on **Tuesday, October 31, 2006** at 4:15 AM Eastern Time. Please contact [NSF International](http://www.nsf.org) to confirm the status of any Listing, report errors, or make suggestions.

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NSF/ANSI STANDARD 61 Drinking Water System Components - Health Effects

NOTE: Unless otherwise indicated for Materials, Certification is only for the Water Contact Material shown in the Listing. [Click here for a list of Abbreviations used in these Listings.](#)

HARMSCO, INC.
 P.O. BOX 14066
 NORTH PALM BEACH, FL 33408-0066
 800-327-3248
 561-848-9628

Facility : WEST PALM BEACH, FL

Mechanical Devices

Trade Designation	Size	Water Contact Temp	Water Contact Material
Microfiltration Devices			
801-M-HT	[2]		D. HOT MLTPL
801-M-W	[2]		D. HOT MLTPL
801-M/L	[2]		D. HOT MLTPL
921-M	[2]		D. HOT MLTPL
931-M	[2]		D. HOT MLTPL
EZ Clean Cartridges			
HB-L-MW	[2]		D. HOT MLTPL
HC/170-M	[1]		D. HOT MLTPL
HC/40-M	[1]		D. HOT MLTPL
HC/90-M	[1]		D. HOT MLTPL
Harmsco® Calypso Blue™ Filter Cartridges for Big-Blue Housings	[2] [3]		D. HOT MLTPL
Harmsco® Filter Cartridges	[2]		D. HOT MLTPL
Harmsco® Hurricane™ Filter Cartridges	[1]		D. HOT MLTPL
Harmsco® Hurricane™ Filter Housings (HUR-40-HP, HUR-90-HP, HUR-170-HP)	[1]		D. HOT MLTPL
Harmsco® Poly-Pleat™ Filter Cartridges (PP-S-1, PP-D-1, PP-T-1, PP-20E-1)	[2]		D. HOT MLTPL
Harmsco® Poly-Pleat™ Filter Cartridges for Big-Blue Housings	[2] [3]		D. HOT MLTPL
Harmsco® Poly-Pleat™ Filter Cartridges for Harmsco® Hurricane™ Filter Housings	[1]		D. HOT MLTPL

PP-BB-L-M	[2]	D. HOT MLTPL
WB-921-M	[2]	D. HOT MLTPL
WB-931-M	[2]	D. HOT MLTPL
WB-M	[2]	D. HOT MLTPL
WB-MW	[2]	D. HOT MLTPL
WaterBetter® Filter Cartridges	[2]	D. HOT MLTPL

- [1] Certified for use in a water treatment facility or distribution system with inlet sizes greater than 1" diameter and with a minimum flow of 3 gallons/minute. Trade names refer to the housing only. Approved filter elements include HC/170-M or EZ-CLEAN by Harmsco, or other NSF/ANSI Standard 61 Certified cartridges meeting size and minimum flow requirements.
- [2] Certified for use in a water treatment facility or distribution system with inlet sizes greater than 1" diameter and with a minimum flow of 4 gallons/minute. M designates the micron rating and L designates the length of the cartridge. The size is >= 2 3/4 inches.
- [3] Big-Blue is a registered trademark of Plymouth Products, Inc.

Miscellaneous Treatment Devices/Components

Harmsco® Hurricane™ Housing - HUR 1X170FL[4]	90 L CLD 23 MLTPL
Harmsco® Hurricane™ Housing - HUR 3X170FL[4]	160 L CLD 23 MLTPL
Harmsco® Hurricane™ Housing - HUR 5X170FL[4]	450 L CLD 23 MLTPL
Harmsco® Hurricane™ Housing - HUR 8X170FL[4]	660 L CLD 23 MLTPL

- [4] Certified for use in a water treatment facility or distribution system with inlet sizes greater than 1" diameter and with a minimum flow of 3 gallons/minute (16,000 liters/day). Trade names refer to the housing only. Approved filter elements include HC/170-M or EZ-CLEAN by Harmsco, or other NSF/ANSI Standard 61 Certified cartridges meeting the size and minimum flow requirements. These housings are not intended for use with cartridges above the Listed water contact temperature.

Number of matching Manufacturers is 1
 Number of matching Products is 27
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Attachment G
(Ion Exchange Filters)

NSF Product and Service Listings

These Listings were Last Updated on **Tuesday, February 03, 2004** at 4:15 AM Eastern Time.
Please [contact NSF International](#) to confirm the status of any Listing, report errors, or make suggestions.

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NSF/ANSI STANDARD 61 Drinking Water System Components - Health Effects

NOTE: Unless otherwise indicated for Materials, Certification is only for the Water Contact Material shown in the Listing. [Click here for a list of Abbreviations used in these Listings.](#)

**DOW CHEMICAL COMPANY
(THE)**
1803 BUILDING
MIDLAND, MI 48674
989-638-6231

Facility : MIDLAND, MI

Process Media

Trade Designation	Size	Water Contact Temp	Water Contact Material
Ion Exchange Resins [2] DOWEX™ 1 Anion Exchange Resin[1]	NA	CLD 23	SYN

[1] The Certification of this media is only for applications with a minimum flow rate greater than or equal to 0.4 gpm per cubic foot of resin.

[2] All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

[3] The Certification of this media is only for applications with a minimum flow rate greater than or equal to 0.25 gpm per cubic foot of resin.

NOTE: Certified for water treatment plant applications.
This product has not been evaluated for point of use applications.

Number of matching Manufacturers is 1
Number of matching Products is 1

**DOWEX™ 1**

High Capacity Strong Base Anion Exchange Resin for Regenerable and Non-Regenerable Applications

Features

- Selective removal of uranium, perchlorate, hexavalent chrome and iodine.
- Non-selective removal of common anions such as nitrate, sulfate and chloride.
- NSF/ANSI 61 approved for drinking water.

Product	Type	Matrix	Functional group
DOWEX™ 1	Type I strong base anion	Styrene-DVB, gel	Quaternary amine

Guaranteed Sales Specifications		Cl ⁻ form
Total exchange capacity, min.	eq/L kg/ft ³ as CaCO ₃	1.4 30.6
Water content	%	43 - 48
Bead size distribution†		
> 1,200 μm, max. (16 mesh)	%	2.0
< 420 μm, max. (40 mesh)	%	3.5
< 300 μm min, max. (50 mesh)	%	0.6
Whole uncracked beads, min.	%	95
Crush strength		
Average, min.	g/bead	350
> 200 g/bead, min.	%	95

Typical Physical and Chemical Properties		Cl ⁻ form
Particle density	g/mL	1.10
Shipping weight	g/L lbs/ft ³	705 44

Recommended Operating Conditions

- Maximum operating temperature:
 - OH⁻ form 60°C (140°F)
 - Cl⁻ form 100°C (212°F)
- pH range 0 - 14
- Bed depth, min. 450 mm (1.5 ft)
- Service flow rate 15 - 20 BV/hr
- Non-selective nitrate service regenerant:
 - Type 7 - 10% NaCl
 - Temperature Ambient or up to 50°C (122°F)

† For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775)

Typical Properties and Applications

DOWEX™ 1 resin is a high quality anion resin with very good mechanical and chemical resistance. It meets NSF/ANSI Standard 61 for use in drinking water.

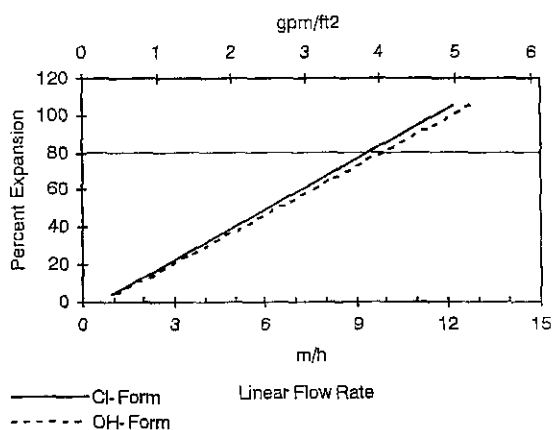
Uranium, perchlorate and hexavalent chrome bind very tightly to DOWEX 1, so regeneration results in significant volumes of waste. Dow recommends disposal of the resin once it is loaded.

Packaging

5 cubic foot fiber drums and 1,000 liter super sack

Figure 1. Backwash Expansion Data

Temperature = 25° C (77° F)



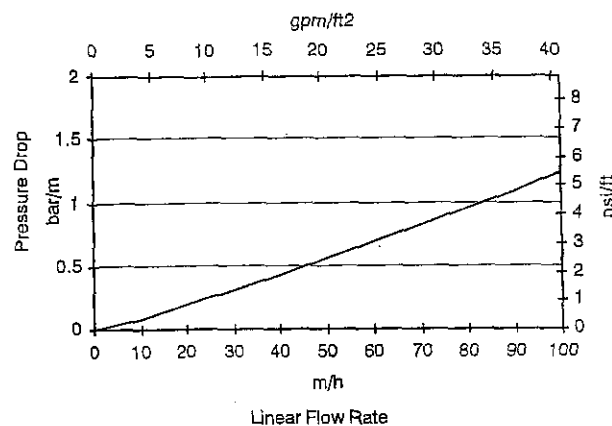
For other temperatures use:

$$F_T = F_{77°F} [1 + 0.008 (T_F - 77)], \text{ where } F = \text{gpm/ft}^2$$

$$F_T = F_{25°C} [1 + 0.008 (1.8T_C - 45)], \text{ where } F = \text{m/h}$$

Figure 2. Pressure Drop Data

Temperature = 20° C (68° F)



For other temperatures use:

$$P_T = P_{20°C} / (0.026 T_C + 0.48), \text{ where } P = \text{bar/m}$$

$$P_T = P_{68°F} / (0.014 T_F + 0.05), \text{ where } P = \text{psi/ft}$$

DOWEX Ion Exchange Resins
For more information about DOWEX resins, call the Dow Liquid Separations business:

North America: 1-800-447-4369
Latin America: (+55) 11-5188-9222
Europe: (+32) 3-450-2240
Pacific: +60 3 7958 3392
Japan: +813 5460 2100
China: +86 21 2301 9000
<http://www.dowex.com>

Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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Product Description/Equipment Specifications
KF Series Duplex Alternating Vessels
Model KFZSD

General Description:

USFilter's *KF Series* water system reduces the nitrate in feedwater using ion exchange resin. The vessel contains high quality anion in the chloride form that removes nitrate by replacing with chloride ions. The resin has a fixed capacity based on the pounds of salt used per cubic foot of resin during regeneration. Flow rate, TDS and other factors will dictate the actual capacity of the resin. When the capacity is exceeded, the resin will allow the nitrate ions to pass through the unit. Before the capacity is exceeded, the unit is removed from service and regenerated with a solution of sodium chloride (brine). Completion of the regeneration steps allows the vessel to be returned to the service mode.

Mechanical Description:

The *KF Series* vessel is a corrosion resistant composite, constructed of a polyethylene shell wound with continuous fiberglass fibers. The shell height is designed to allow for expansion of the media during the regeneration cycle. The top vessel opening is used for media loading and connection for the multiport control valve.

Two vessels are supplied with high capacity anion exchange resin and a gravel support bed. The inlet diffuser evenly distributes influent water, collects backwash water and introduces the brine regenerant solution. The lower hub and lateral or single point distributor (depending upon tank size) collects effluent and regeneration water as well as distributes the backwash water.

Each vessel is fitted with a top-mounted, five-cycle multiport control valve to accomplish the operational steps of backwash, brine draw, slow rinse, fast rinse and refill cycles. The brass control valve includes fixed and self-adjusting flow regulators to control flow rates during each operational cycle. The valve seals are static o-rings and separated by precision positioned spacers. The cycles of regeneration are accomplished with the movement of a hydraulically balanced Teflon coated piston. The piston is the only moving part in the main control valve. The 1" and 1.5" volume initiated controllers include a solenoid valve to be wired to the controller, which will actuate a diaphragm valve for each resin tank. The included diaphragm valves then maintain the alternating flow sequence of the duplex vessel. The 2" and 3" control valves do this internally, so they do not require the extra solenoid and diaphragm valve.

A single salt storage tank (brine tank) is supplied as part of the system, which is constructed of corrosion resistant polyethylene. The brine tank is equipped with an automatic air-eliminator safety valve attached to the brine line and housed within a protective chamber inside the brine tank to prevent damage during salt loading. The brine valve will automatically open to educt the brine into the resin tank, close to prevent eduction of air, and refill the brine tank with the proper amount of water regardless of the salt level in the tank.

The dual tank configuration provides treated water during service. Volume initiated systems do not have an internal by-pass valve, thus preventing raw water bypass during the regeneration cycle. The system consists of two control valves, two resin tanks, one brine tank, one digital totalizing meter, resin, and a gravel support bed.

Electrical Description:

A digital totalizing water meter initiates regeneration based on the volume capacity of the vessel. The operator can manually initiate regeneration at any time.

Operational Description:

The vessels have two modes of operation, service and regeneration. The service mode delivers treated water to equipment downstream. Regeneration is comprised of five steps; backwash, brine introduction, slow rinse, fast rinse and brine refill. The backwash step removes trapped material and reclassifies the bed. The brine introduction step strips nitrate from the resin and converts the resin into the chloride form. The rinse steps displace the brine with water and prepares the bed for the service mode. The brine re-fill step adds the proper amount of water back into the brine tank to dissolve the precise amount of salt for the next regeneration cycle.

These vessels operate in an alternating fashion. Only one vessel will be in the service mode or regeneration mode at any given time. When the preset volume of water has been treated, the first vessel will begin the regeneration mode and the second vessel will begin the service mode. The digital totalizing water meter is reset to zero when each vessel begins its regeneration mode.

Product Offering Overview:

Model Number	Maximum Product Flow Rate (GPM)	Reference for Data Tables (Kgrains-Pipe Size)
KFZSD009FPZVAX	19	30-1
KFZSD012FPZVAX	21	60-1
KFZSD012FPZVBX	39	60-1.5
KFZSD014FPZVAX	22	90-1
KFZSD014FPZVBX	42	90-1.5
KFZSD016FPZVAX	23	120-1
KFZSD016FPZVBX	46	120-1.5
KFZSD018FPZVBX	54	150-1.5
KFZSD018FPZVCX	81	150-2
KFZSD021FPZVBX	52	210-1.5
KFZSD021FPZVCX	77	210-2
KFZSD024FPZVBX	68	300-1.5
KFZSD024FPZVCX	91	300-2
KFZSD030FPZVCX	105	450-2
KFZSD030FPZVEX	213	450-3
KFZSD036FPZVEX	250	600-3
KFZSD042FPZVEX	268	750-3
KFZSD048FPZVEX	275	1,200-3

Design Parameters:

Configuration	Duplex Alternating
Feed Temperature	45 – 100°F
Feed Pressure	30 – 100 psig +/- 5 psig
Maximum Inlet Turbidity	5 NTU
Sizing	2 GPM/ft ² minimum
Bed Depth	30" to 40", USFilter C-211 strong acid cation resin
Freeboard	53% to 125%
Regeneration	6 lbs. NaCl / ft ³

General Specifications:

Pressure Vessels:	
Materials	Composite polyethylene and fiberglass
Rating	150 psig
Support	Free standing
Access Openings	
For 1" Valve Units	(1) 2½" Threaded
For 1½" Valve Units	(1) 4" Threaded
For 2" Valve Units	(1) 4" Threaded
For 3" Valve Units	(1) 6" Threaded
Process Connections	Threaded brass
Distribution Systems:	
Upper	Basket diffuser
Lower (underdrain)	
10" diameter through 18" diameter w/ 1" pipe	PVC basket strainer
18" diameter w/1½" pipe through 36"	Single row PVC hub and Schedule 80 PVC slotted radials
Top Mount Valve:	
1"	Fleck model 2750 brass construction
1½"	Fleck model 2850 brass construction
2"	Fleck model 2900 brass construction
3"	Fleck model 3900 brass construction

Controls Specifications:

Power	110 volt, 60 Hz, 10 Watts
Enclosure	NEMA 3R
Controller	Fleck 3200 (3200NT for Volume Initiation)

Operating Limits:

Temperature:	
Maximum Feed Temperature	110°F
Minimum Feed Temperature	45°F
Pressure:	
Maximum Feed Pressure	100 psig
Minimum Feed Pressure	30 psig
Maximum Pressure Variability	+/- 5 psig

*If any of the operating conditions are not within the limits given, consult the factory for the appropriate recommendation and application assistance.

Process Influent Guidelines:

Parameter:	
Total Dissolved Solids	750 ppm as CaCO ₃
Suspended Solids	5 NTU
Chlorine	0.5 ppm
Organics	0.5 ppm as O ₂ consumed

*If any of the feedwater parameters are not within the limits given, consult the factory for the appropriate recommendation and application assistance.

Regulations and Standards:

Pressure Vessels	NSF and WQA
Electrical	NEMA 3R

Documentation Package:

Documents	Storage, installation and operating instructions, and shipping list
Drawings	Piping arrangement and line wiring
Quality Documents	Inspection check list / pick list

*Filter 42" diameter x 87" high
Bine tank 42" diameter x 60" high*

Flow Rate Specifications (gpm Per Vessel):

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Minimum*	0.9	1.4	1.4	2.2	2.2	2.6
Maximum** (RO Pretreatment)	3	6	6	9	9	12
Normal (15 psig ΔP)	14	14	26	17	31	21
Maximum (25 psig ΔP)	19	21	39	22	42	23

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Minimum*	2.6	3.6	3.6	4.8	4.8	6.0
Maximum** (RO Pretreatment)	12	15	15	21	21	30
Normal (15 psig ΔP)	34	41	63	35	60	42
Maximum (25 psig ΔP)	46	54	81	52	77	68

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Minimum*	6.0	9.2	9.2	13.4	18.0	24.0
Maximum** (RO Pretreatment)	30	45	45	60	75	120
Normal (15 psig ΔP)	68	92	160	185	195	200
Maximum (25 psig ΔP)	91	105	213	250	268	275

* Minimum flow rate calculated at 2 GPM / ft²

** Maximum (RO Pretreatment) flow rate calculated at 3 GPM / ft³

Media Specifications (Per Vessel):

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Ion Exchange Resin (ft ³)	1	2	2	3	3	4
Resin Capacity* (Kgrains)	30	60	60	90	90	120
Support, No. 4 Quartz (ft ³)	0	0	0	0.4	0.4	0.55

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Ion Exchange Resin (ft ³)	4	5	5	7	7	10
Resin Capacity* (Kgrains)	120	150	150	210	210	300
Support, No. 4 Quartz (ft ³)	0.55	0.7	0.7	1.0	1.0	1.75

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Ion Exchange Resin (ft ³)	10	15	15	20	25	40
Resin Capacity* (Kgrains)	300	450	450	600	750	1,200
Support, No. 4 Quartz (ft ³)	1.75	2.5	2.5	3.5	5	7

* Capacities based on 15 lbs. NaCl / ft³ resin.

Regeneration Flow Rate Specifications (gpm):

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Backwash	2	3.5	3.5	5	5	7
Dilute Brine In	0.24	0.42	0.42	0.46	0.72	0.46
Slow Rinse	0.42	0.80	0.80	1.12	1.02	1.12
Fast Rinse	2.0	3.5	3.5	5.0	5.0	7.0
Brine Refill	0.5	0.5	0.5	0.5	0.5	0.5

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Backwash	7	9	9	12	12	15
Dilute Brine In	0.72	1.21	1.21	1.75	1.75	2.46
Slow Rinse	1.02	1.16	1.16	2.02	2.02	2.80
Fast Rinse	7.0	9.0	9.0	12	12	15
Brine Refill	0.5	2.0	2.0	2.0	2.0	2.0

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Backwash	15	25	25	35	50	60
Dilute Brine In	2.46	2.72	3.1	3.9	6.7	9.4
Slow Rinse	2.80	3.22	4.6	6.9	9.4	8.8
Fast Rinse	15	25	25	35	48	63
Brine Refill	2.0	2.0	5.0	5.0	5.0	5.0

Regeneration Time Specifications (Minutes):

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Backwash	10	10	10	10	10	10
Dilute Brine In	24	26	26	36	24	50
Slow Rinse	18	18	18	20	22	26
Fast Rinse	10	12	12	10	10	12
Brine Refill	10	20	20	30	30	40

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Backwash	10	10	10	10	10	10
Dilute Brine In	32	24	24	22	22	24
Slow Rinse	30	32	32	26	26	26
Fast Rinse	12	12	12	12	12	14
Brine Refill	40	12	12	18	18	26

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Backwash	10	10	10	10	10	10
Dilute Brine In	24	32	28	30	22	24
Slow Rinse	26	34	24	22	20	34
Fast Rinse	14	12	12	12	10	14
Brine Refill	26	38	16	20	26	40

Regeneration Volume Specifications (Gallons):

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Backwash	20	35	35	50	50	70
Dilute Brine In	6	11	11	17	17	23
Slow Rinse	7.5	15	15	22	22	30
Fast Rinse	20	40	40	60	60	80
Refill	5	10	10	15	15	20
Total Wastewater:	58	111	111	164	164	223

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Backwash	70	90	90	120	120	150
Dilute Brine In	23	28	28	40	40	57
Slow Rinse	30	37	37	52	52	75
Fast Rinse	80	100	100	140	140	200
Refill	20	25	25	35	35	50
Total Wastewater:	223	281	281	387	387	531

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Backwash	150	250	250	350	500	600
Dilute Brine In	57	85	85	113	142	226
Slow Rinse	75	112	112	150	187	299
Fast Rinse	200	300	300	400	500	800
Refill	50	75	75	100	125	200
Total Wastewater:	531	822	822	1,113	1,454	2,126

Customer Connection Specifications (Per Vessel):

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Service Inlet / Outlet	1"	1"	1½"	1"	1½"	1"
Backwash / Drain Outlet	½"	½"	¾"	½"	¾"	½"

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Service Inlet / Outlet	1½"	1½"	2"	1½"	2"	1½"
Backwash / Drain Outlet	¾"	¾"	¾"	¾"	¾"	¾"

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Service Inlet / Outlet	2"	2"	3"	3"	3"	3"
Backwash / Drain Outlet	¾"	¾"	2"	2"	2"	2"

Utility Requirements:

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Electrical	110 Volt, 1 Phase, 60 Hertz, 10 Watts					
Feedwater	30 psig minimum, 100 psig maximum					
Maximum Drain (GPM)	2	3.5	3.5	5.0	5.0	7.0
Pounds of NaCl per Regeneration	15	30	30	45	45	60

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Electrical	110 Volt, 1 Phase, 60 Hertz, 10 Watts					
Feedwater	30 psig minimum, 100 psig maximum					
Maximum Drain (GPM)	7.0	9.0	9.0	12	12	15
Pounds of NaCl per Regeneration	60	75	75	105	105	150

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Electrical	110 Volt, 1 Phase, 60 Hertz, 10 Watts					
Feedwater	30 psig minimum, 100 psig maximum					
Maximum Drain (GPM)	15	25	25	35	50	60
Pounds of NaCl per Regeneration	150	225	225	300	375	600

Note: A floor drain is required for all systems

Physical Dimension Specifications:*

Reference	30-1	60-1	60-1.5	90-1	90-1.5	120-1
Vessel Size	9 x 40	12 x 52	12 x 52	14 x 65	14 x 65	16 x 65
Brine Tank Size	18 x 40	18 x 40	18 x 40	24 x 40	24 x 40	24 x 40
Shipping Weight (lbs)	270	500	500	750	750	880
Operating Weight (lbs)	770	1,060	1,060	2,210	2,210	2,340

Reference	120-1.5	150-1.5	150-2	210-1.5	210-2	300-1.5
Vessel Size	16 x 65	18 x 65	18 x 65	21 x 62	21 x 62	24 x 72
Brine Tank Size	24 x 40	24 x 54	24 x 54	24 x 54	24 x 54	24 x 54
Shipping Weight (lbs)	880	1,220	1,220	1,500	1,500	3,100
Operating Weight (lbs)	2,340	3,120	3,120	3,370	3,370	3,480

Reference	300-2	450-2	450-3	600-3	750-3	1200-3
Vessel Size	24 x 72	30 x 72	30 x 72	36 x 72	42 x 72	48 x 72
Brine Tank Size	24 x 54	30 x 48	30 x 48	39 x 48	42 x 60	50 x 60
Shipping Weight (lbs)	3,100	3,240	3,240	4,100	4,800	6,100
Operating Weight (lbs)	3,480	9,000	9,000	9,600	16,200	21,500

* Does not include operating space requirements. Brine tank included in shipping and operating weights.

Standard Product Ordering Information:

Sample Part Number		KFZSD	009	F	P	Z	V	A	X
KFZSD	KF Series Duplex Alternating System								
Structural Tank Size									
009	9" x 40"								
012	12" x 52"								
014	14" x 65"								
016	16" x 65"								
018	18" x 65"								
021	21" x 62"								
024	24" x 72"								
030	30" x 72"								
036	36" x 72"								
042	42" x 72"								
048	48" x 72"								
Vessel Material									
F	Standard Non-Code Fiberglass								
Control Rating									
P	NEMA 3R 3200NT Cover								
Skid									
Z	Stand-alone unit, non-skid								
Control Type									
V	3200NT w/ Volume Initiation								
Pipe Size									
A	1" (for 9", 12", 14", 16" tanks)								
B	1.5" (for 12", 14", 16", 18", 21", 24" tanks)								
C	2" (for 18", 21", 24", 30" tanks)								
E	3" (for 30", 36", 42", 48" tanks)								
Options									
X	No Options								

Note: Not all model number combinations are available.

ATTACHMENT H

NSF Product and Service Listings

These Listings were Last Updated on **Tuesday, February 03, 2004** at 4:15 AM Eastern Time.
Please contact NSF International to confirm the status of any Listing, report errors, or make suggestions.

Warning: NSF is concerned about fraudulent downloading and manipulation of website text. If you have received a listing in hard copy, always confirm this certification/listing information by going directly to <http://www.nsf.org/Certified/PwsComponents/Listings.asp?TradeName=Dowex&StandardExt=PMA&ProductType=Ion+Exchange+Resins&PlantCountry=UNITED+STAT> for the latest most accurate information.

NSF/ANSI STANDARD 61 Drinking Water System Components - Health Effects

NOTE: Unless otherwise indicated for Materials, Certification is only for the Water Contact Material shown in the Listing. Click here for a list of Abbreviations used in these Listings.

DOW CHEMICAL COMPANY
(THE)
1803 BUILDING
MIDLAND, MI 48674
989-638-6231

Facility : MIDLAND, MI

Process Media

Trade Designation	Size	Water Contact Temp	Water Contact Material
Ion Exchange Resins [2] DOWEX™ 1 Anion Exchange Resin[1]	NA	CLD 23	SYN

[1] The Certification of this media is only for applications with a minimum flow rate greater than or equal to 0.4 gpm per cubic foot of resin.

[2] All Listed products from this facility are NSF Certified, whether or not they bear the NSF Mark.

[3] The Certification of this media is only for applications with a minimum flow rate greater than or equal to 0.25 gpm per cubic foot of resin.

NOTE: Certified for water treatment plant applications.

This product has not been evaluated for point of use applications.

Number of matching Manufacturers is 1
Number of matching Products is 1

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

24-HOUR EMERGENCY PHONE NUMBER: 989-636-4400

Product: DOWEX* 1 ANION EXCHANGE RESIN

Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

The Dow Chemical Company, Midland, MI 48674

Customer Information Center: 800-258-2436

2. COMPOSITION/INFORMATION ON INGREDIENTS

Styrene, divinylbenzene and ethylstyrene copolymer, chloromethyl trimethylamine functionalized in the chloride form	CAS# 069011-19-4	20-65*
Water	CAS# 007732-18-5	35-80*

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

 * White to amber beads. Odorless to amine odor. Slipping hazard. *
 *

POTENTIAL HEALTH EFFECTS (See Section 11 for toxicological data.)

EYE: May cause slight transient (temporary) eye irritation. Solid or dust may cause irritation or corneal injury due to mechanical action.

SKIN CONTACT: Prolonged or repeated exposure not likely to cause significant skin irritation. May cause more severe response if skin is abraded (scratched or cut). Skin absorption is unlikely due to physical properties.

INGESTION: Single dose oral toxicity is considered to be extremely low. No hazards anticipated from swallowing small amounts incidental to normal handling operations.

INHALATION: No adverse effects are anticipated from inhalation. Vapors are unlikely due to physical properties.

(Continued on Page 2)

* or (R) Indicates a Trademark of The Dow Chemical Company

M A T E R I A L S A F E T Y D A T A S H E E T

Page: 2

Product: DOWEX* 1 ANION EXCHANGE RESIN
Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

3. HAZARDS IDENTIFICATION (CONTINUED)

SYSTEMIC & OTHER EFFECTS: No significant toxicologic effects were observed in laboratory animals fed this material in their diets for 1 month.

CANCER INFORMATION: No relevant information found.

TERATOLOGY (BIRTH DEFECTS): No relevant information found.

REPRODUCTIVE EFFECTS: No relevant information found.

4. FIRST AID

EYES: Flush eyes with plenty of water; remove contact lenses after the first 1-2 minutes then continue flushing for several minutes. Only mechanical effects expected.

SKIN: Wash off in flowing water or shower.

INGESTION: No emergency medical treatment necessary.

INHALATION: No emergency medical treatment necessary.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not applicable

METHOD USED: Not applicable

FLAMMABLE LIMITS

LFL: Not applicable

UFL: Not applicable

HAZARDOUS COMBUSTION PRODUCTS: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to organic amines, nitrogen oxides, hydrogen chloride, hydrocarbons, carbon monoxide, benzene compounds and carbon dioxide.

(Continued on Page 3)

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M A T E R I A L S A F E T Y D A T A S H E E T

Page: 3

Product: DOWEX* 1 ANION EXCHANGE RESIN
Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

5. FIRE FIGHTING MEASURES (CONTINUED)

OTHER FLAMMABILITY INFORMATION: This material does not burn.
In a fire situation, residue can burn.

EXTINGUISHING MEDIA: Water, carbon dioxide, dry chemical.

FIRE-FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area
and deny unnecessary entry. Cool surroundings with water to
localize fire zone. Soak thoroughly with water to cool and
prevent re-ignition.

PROTECTIVE EQUIPMENT FOR FIRE FIGHTERS: Wear positive-pressure
self-contained breathing apparatus (SCBA) and protective fire
fighting clothing (includes fire fighting helmet, coat, pants,
boots and gloves). If protective equipment is not available or
not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES (See Section 15 for Regulatory
Information)

PROTECT PEOPLE: Pellets or heads may present a slipping hazard.

PROTECT THE ENVIRONMENT: Avoid contamination of all waterways.

CLEANUP: Sweep up. See Section 13, Disposal Considerations.

7. HANDLING AND STORAGE

HANDLING STATEMENTS: See Section 8, Exposure Controls/Personal
Protection.

STORAGE STATEMENTS: Keep containers tightly closed when not in
use. Store between 2-27C (35-80F).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Good general ventilation should be
sufficient for most conditions.

PERSONAL PROTECTIVE EQUIPMENT:

(Continued on Page 4)

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M A T E R I A L S A F E T Y D A T A S H E E T

Page: 4

Product: DOWEX* 1 ANION EXCHANGE RESIN
Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

EYE/FACE PROTECTION: Use safety glasses. If there is a potential for exposure to particles which could cause mechanical injury to the eye, wear chemical goggles.

SKIN PROTECTION: Use gloves impervious to this material when prolonged or frequently repeated contact could occur. If hands are cut or scratched, use gloves impervious to this material even for brief exposures.

RESPIRATORY PROTECTION: No respiratory protection should be needed.

EXPOSURE GUIDELINE: None established.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White to amber beads
ODOR: Odorless to amine
VAPOR PRESS: Not applicable
VAPOR DENSITY: Not applicable
BOILING POINT: Not applicable
SOLUBILITY IN WATER: Insoluble
SPECIFIC GRAVITY: Density 44 lb/ft³

10. STABILITY AND REACTIVITY

STABILITY AND REACTIVITY: Stable under recommended storage conditions. See Storage, Section 7.

CONDITIONS TO AVOID: Product can decompose at elevated temperatures.

INCOMPATIBILITY MATERIALS: Oxidizing agents such as nitric acid attack organic exchange resins under certain conditions. Before using strong oxidizing agents, consult sources knowledgeable in handling such materials. The severity of the reaction with oxidizing materials can vary from slight degradation to an explosive reaction. Avoid contact with oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Hazardous decomposition products depend upon temperature, air supply and the presence

(Continued on Page 5)

* or (R) Indicates a Trademark of The Dow Chemical Company

M A T E R I A L S A F E T Y D A T A S H E E T

Page: 5

Product: DOWEX* 1 ANION EXCHANGE RESIN
Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

10. STABILITY AND REACTIVITY (CONTINUED)

of other materials. Hazardous decomposition products may include and are not limited to chlorinated hydrocarbons, aromatic compounds, hydrocarbons, hydrogen chloride and organic amines.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION (See Section 3 for Potential Health Effects. For detailed toxicological data, write or call the address or non-emergency number shown in Section 1)

INGESTION: Single dose oral LD50 has not been determined.

MUTAGENICITY: No relevant information found.

12. ECOLOGICAL INFORMATION (For detailed Ecological data, write or call the address or non-emergency number shown in Section 1)

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING: No relevant information found.

DEGRADATION & PERSISTENCE: No relevant information found.

ECOTOXICITY: Not expected to be acutely toxic, but pellets may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

13. DISPOSAL CONSIDERATIONS (See Section 15 for Regulatory Information)

DISPOSAL: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND OR INTO ANY BODY OF WATER. All disposal methods must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. THE DOW CHEMICAL COMPANY HAS NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION 2 (Composition/Information On Ingredients).

(Continued on Page 6)

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M A T E R I A L S A F E T Y D A T A S H E E T

Page: 6

Product: DOWEX* 1 ANION EXCHANGE RESIN
Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

DISPOSAL CONSIDERATIONS: (CONTINUED)

FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted incinerator or other thermal destruction device, landfill.

As a service to its customers, Dow can provide names of information resources to help identify waste management companies and other facilities which recycle, reprocess or manage chemicals or plastics, and that manage used drums. Telephone Dow's Customer Information Center at 800-258-2436 or 989-832-1556 for further details.

14. TRANSPORT INFORMATION

DEPARTMENT OF TRANSPORTATION (D.O.T.): For D.O.T. regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

CANADIAN TDG INFORMATION: For TDG regulatory information, if required, consult transportation regulations, product shipping papers or contact your Dow representative.

15. REGULATORY INFORMATION (Not meant to be all-inclusive--selected regulations represented)

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

U.S. REGULATIONS

=====

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

(Continued on Page 7)

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M A T E R I A L S A F E T Y D A T A S H E E T

Page: 7

Product: DOWEX* 1 ANION EXCHANGE RESIN
Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

REGULATORY INFORMATION: (CONTINUED)

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Not to have met any hazard category

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: This product is not known to contain any substances subject to the disclosure requirements of

New Jersey
Pennsylvania

OSHA HAZARD COMMUNICATION STANDARD:

This product is not a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CANADIAN REGULATIONS
=====

WHMIS INFORMATION: The Canadian Workplace Hazardous Materials

(Continued on Page 8)

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M A T E R I A L S A F E T Y D A T A S H E E T

Page: 8

Product: DOWEX* 1 ANION EXCHANGE RESIN
Product Code: 22784

Effective Date: 01/30/02 Date Printed: 09/26/03 MSD: 001152

REGULATORY INFORMATION: (CONTINUED)

Information System (WHMIS) Classification for this product is:

This product is not a "Controlled Product" under WHMIS.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA):

All substances in this product are listed on the Canadian Domestic Substances List (DSL) or are not required to be listed.

16. OTHER INFORMATION

MSDS STATUS: Revised Section 2.

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The Information Herein Is Given In Good Faith, But No Warranty,
Express Or Implied, Is Made. Consult The Dow Chemical Company For
Further Information.

Attachment H
(Material safety Data Sheet)

Attachment I
(Engineering Plans)

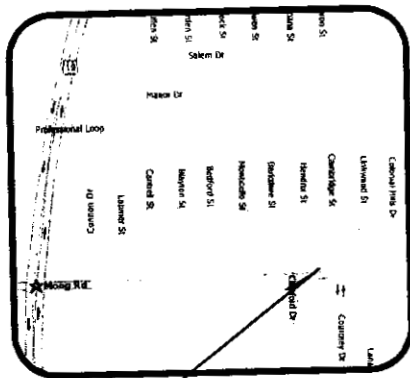
COLONIAL MANOR UTILITY COMPANY
PASCO COUNTY, FLORIDA

**PROPOSED WATER TREATMENT SYSTEM
NITRATES REMOVAL SYSTEM
PERMITTING PLANS**

4939 Cross Bayou Blvd.
New Port Richey, Florida 34652-3434
Phone: (727) 848-8292 Fax: (727) 848-7701

INDEX OF DRAWINGS

SHEET NO.	TITLE
1	COVER SHEET
2	FLOW DIAGRAM
3	PROPOSED SITE PLAN
4	PIPING PLAN
5	STORAGE TANK DETAILS
6	GENERAL NOTES & DETAILS



PROJECT
LOCATION

LOCATION MAP
N.T.S.



LOCATION: 1/8 MILE WEST OF US-19 OR WOOD RD, NEW PORT RICHEY FL
SITE STATISTICS:

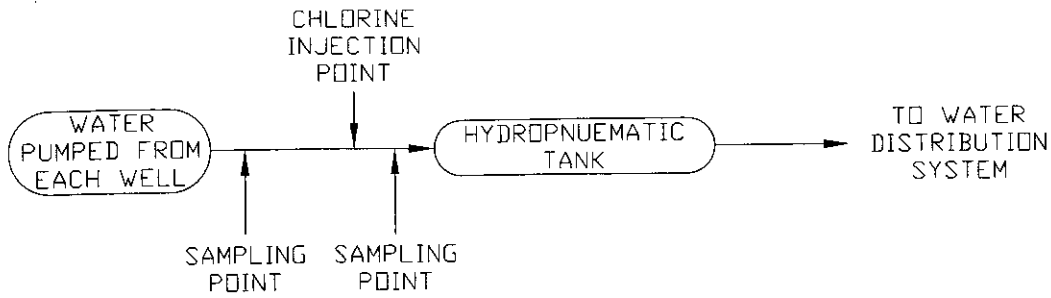
PROJECT TEAM
OWNER - COLONIAL MANOR UTILITIES 4939 CROSS BAYOU BLVD. NEW PORT RICHEY, FL 34652-3434 (727) 848-8292 - FAX (727) 848-7701
PROFESSIONAL ENGINEERING SERVICES - U.S. WATER SERVICES CORPORATION 4939 CROSS BAYOU BLVD. NEW PORT RICHEY, FL 34652-3434 (727) 848-8292 - FAX (727) 848-7701

UTILITIES -
ALL UTILITIES CONTROLLED PRIVATELY ON SITE

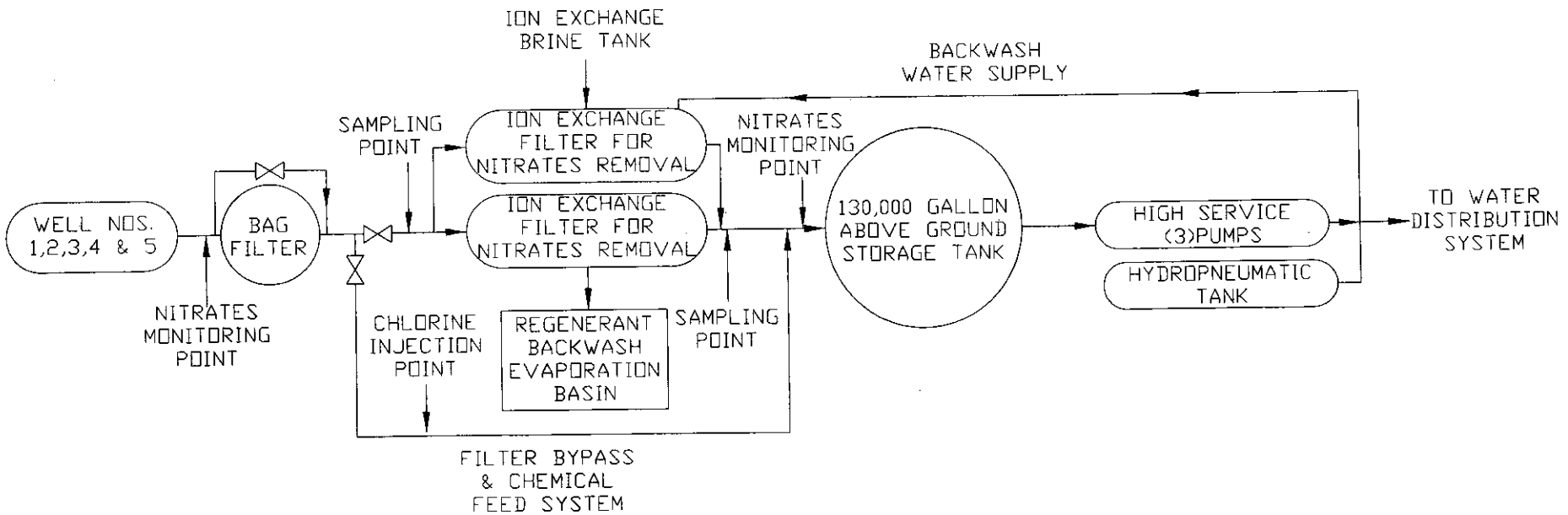
**ENGINEERING PLANS
PREPARED FOR:
COLONIAL MANOR
UTILITY COMPANY
PASCO COUNTY,
FLORIDA**

*M. Kader, P.E.
1-9-07
No. 45129*

THE DRAWING AND THE DESIGN SHOWN ARE THE PROPERTY OF U.S. WATER SERVICES CORP. AND ARE NOT TO BE REPRODUCED, COPIED, PUBLISHED OR USED IN WHOLE OR PART WITHOUT WRITTEN CONSENT. THEY ARE TO BE USED ONLY FOR THE SITE AND PROJECT DESCRIBED AND SHALL BE RETURNED UPON REQUEST.



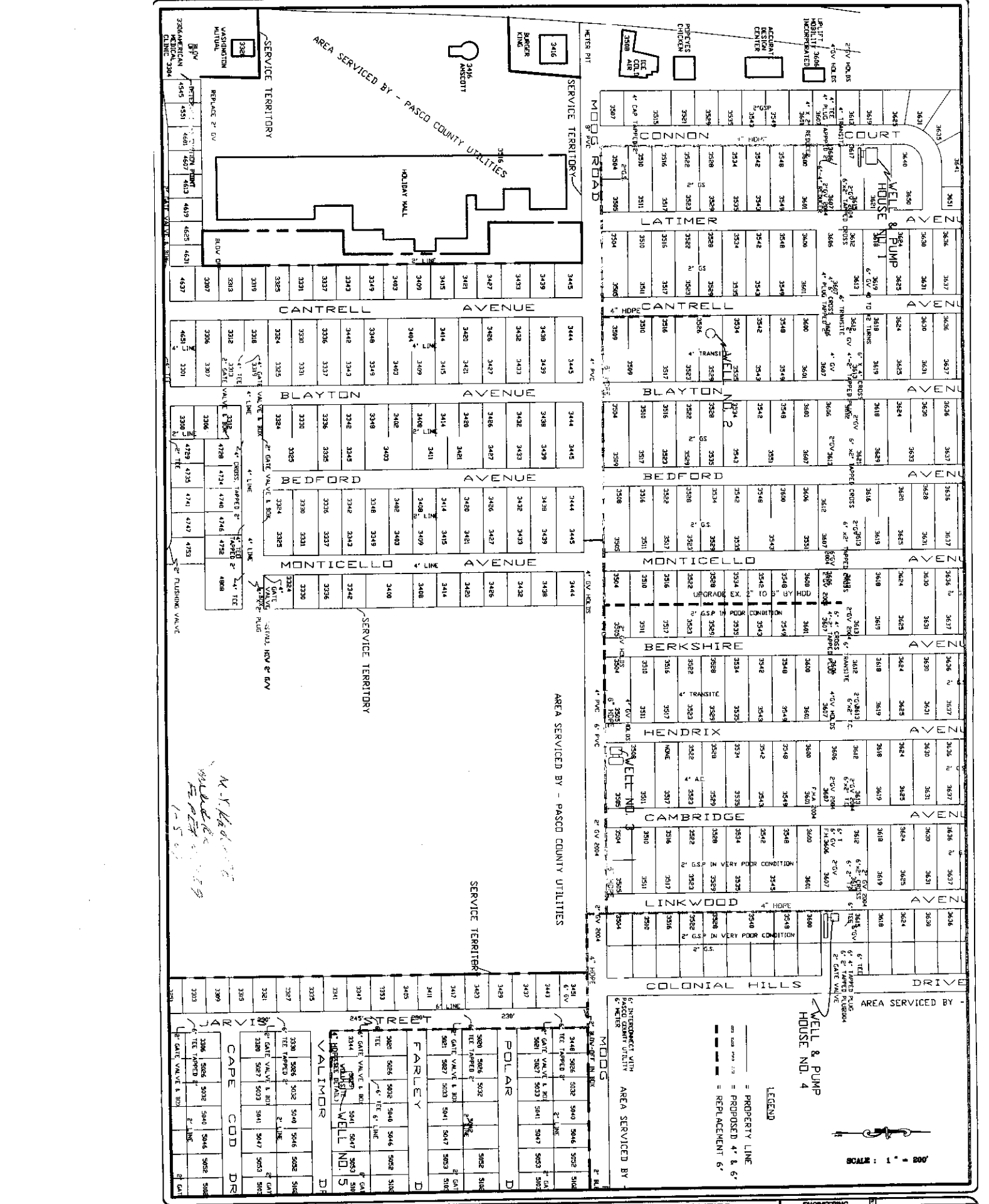
EXISTING TREATMENT SYSTEM



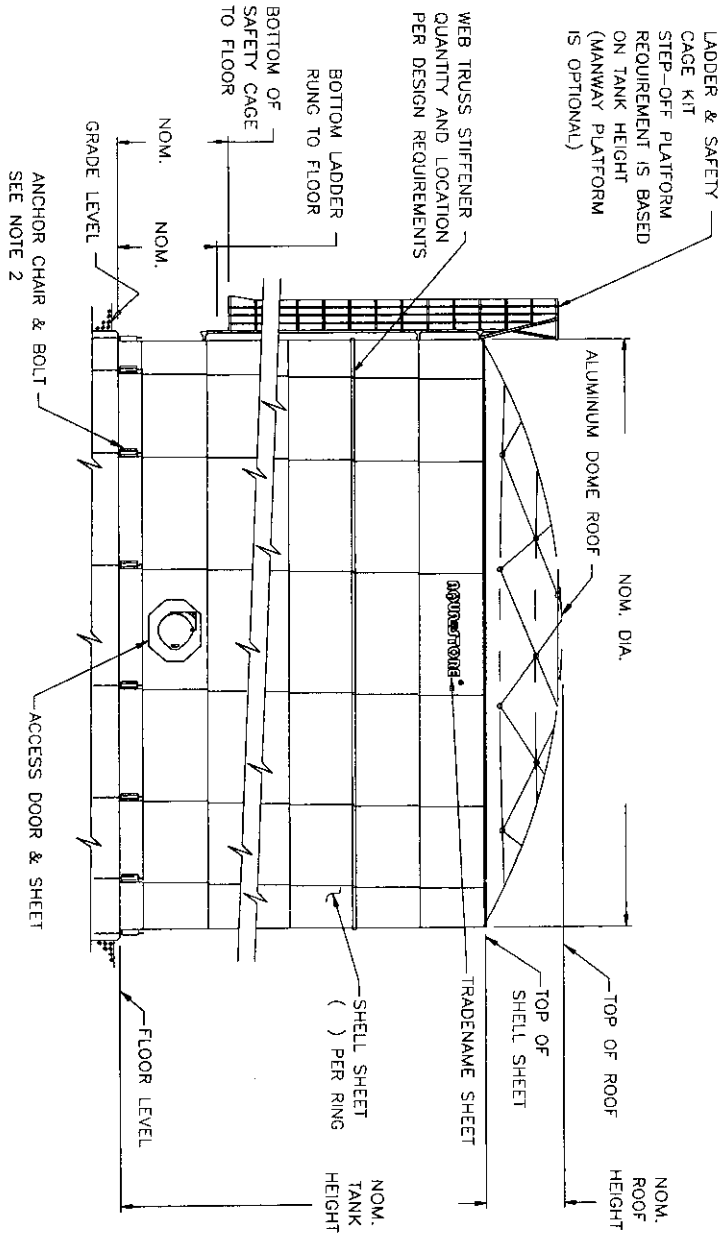
PROPOSED TREATMENT SYSTEM

ENGINEERING	Date: 1/15/08
Drawn By: J.P.	Scale: 1/8"
Checked By: [Signature]	Revision Number:
COLONIAL MANOR UTILITY PROPOSED NITRATE REMOVAL SYSTEM PROCESS FLOW CHART PASCO COUNTY FLORIDA	
4939 CROSS BAYOU BOULEVARD NEW PORT RICHEY, FL 34652 (727) 948-9282 (727) 948-7701	
CS: [Signature]	2
0000-00.00	6

By: [Signature]
 Date: 1/15/08
 1-9-07



- GENERAL NOTES:
1. FOR TANK DIMENSIONAL VALUES SEE "WATER & TREATMENT TANK GENERAL DIMENSIONS," DRAWING NO. 261375.
 2. FOR FOUNDATION CONFIGURATIONS AND CORRESPONDING CONSTRUCTION MATERIAL REQUIREMENTS REFER TO THE PROJECT SUBMITTAL DOCUMENTATION.



REV	DESCRIPTION
1	RELEASED FOR M/I MARKETING SALES & PRE-SUBMITTAL USAGE 5-8-90, RKK
2	REVISED GENERAL NOTES AND LABELS, REVISED ANCHOR CHAIR POSITIONS: 1-2-91, RKK
3	REVISED NOTE 2 ECN 98172, 06/11/98, MCA/
4	CHANGED GLASS FLOOR TO STEEL FLOOR, ECN 99170, 09/01/99 JTF/
5	REVISED COMPANY NAME ECN 01100, 5/24/01 DWA

WATER TANK WITH STEEL FLOOR FOUNDATION 36' THRU 101' DIA

DRAWG NO. 261365

*M. Y. Reed: RSK
Shaw: RSK
2/20/98 #15129
1-5-98*

GENERAL CONSTRUCTION NOTES

- All elevations shown hereon are based on an assumed elevation.
- All design and construction shall conform to the minimum standards set forth by Pasco County.
- Locations, elevations and dimensions of existing utilities, structures and other features are shown according to the best information available at the time of preparation of these plans. The contractor shall verify the locations, elevations, and dimensions of all existing utilities, structures and other features affecting this work prior to construction.
- The contractor shall check plans for conflicts and discrepancies prior to performing any work in the affected areas.
- The contractor is responsible for repairing any damage to existing facilities, above or below ground, that may occur as a result of the work performed by the contractor called for in this contract.
- All underground utilities must be in place and tested or inspected prior to road base and subsurface construction.
- It is the contractor's responsibility to become familiar with the permit and inspection requirements specified by the various governmental agencies and the engineer. The contractor shall obtain all necessary permits prior to construction and schedule inspection according to agency instructions.
- All work performed shall comply with the regulations and ordinances of the various governmental agencies having jurisdiction over the work.
- Contractor shall submit shop drawings on all precast and manufactured items to the engineer for approval. Failure to obtain approval before installation may result in removal and replacement at contractor's expense.
- All water lines and sanitary lines are to be PVC unless otherwise noted.
- All sidewalks to be a minimum of 3,000 psi concrete and 4" thick and shall be reinforced with 1.4 x 1.4 W.W.M.
- Signs and barricades to be according to FDOT manual of safe practices; reference FDOT indexes 600 thru 650 and 17349 per roadway and traffic design standards latest edition.
- It is the responsibility of the contractor to establish in the field right-of-way lines, benchmarks (ELEV.), coordinates, center lines and stationing as required to construct this project.
- All pipes to be constructed with 3" minimum cover unless otherwise noted on the plans.
- All rocks or stones larger than 5" in diameter shall be removed from the backfill material. Backfill material placed within 1-foot of piping and appurtenances shall not contain any stones larger than 2" in diameter.
- All workmanship and materials used in the construction of this project shall conform to FDOT's Standard specifications for roadwork and bridge construction, latest edition, and the latest Pasco county standards, unless otherwise indicated.
- The contractor shall notify the appropriate public agencies prior to commencing work within their jurisdiction.
- All pipe lengths are approximate. Pipe measurements are to center of structures or fittings. Pipe measurements for straight endwell end sections are to end of pipe.
- All concrete work shall have a minimum ultimate compressive strength of 3,000 psi (28 day strength), unless otherwise indicated.

WATER SYSTEM NOTES

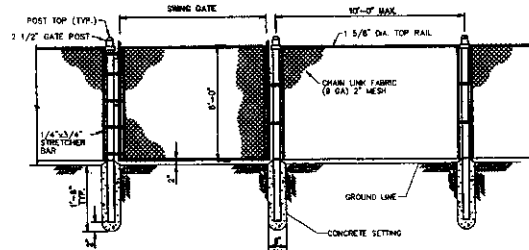
- A vertical clearance of 18 inches shall be maintained between sanitary sewers and water mains. If clearances cannot be achieved by adjusting water mains the sanitary sewer shall be constructed of pressure class 350 ductile iron pipe for no less than 10 feet on each side of the conflict point. As an alternative the sanitary sewer may be placed in a sleeve or encased in concrete for the required 10 feet on each side of the conflict point.
- A lateral separation of 10 feet shall be maintained between water mains and sanitary sewer.
- All water mains shall have a minimum of 36 inches of cover.
- All water system work shall conform with Pasco County standards and specifications.
- Conflicts between water and storm or sanitary sewer to be resolved by adjusting the water lines as necessary.
- All onsite PVC potable water mains 4" and above shall be in accordance with AVWA C-900. Pipe shall be class 150 DR 18. The fire main shall be constructed of PVC and shall be class 200 DR 14.
- All PVC water mains 1 1/2" through 3" shall be class 200 and meet the requirements of SDR 21 in accordance with ASTM D-2241. Water mains smaller than 1 1/2" shall be schedule 40.
- All ductile iron pipe shall be pressure class 350 in accordance with ANSI A21.50 (AVWA C150), and ANSI A21.31 (AVWA C151), and pipe shall receive exterior bituminous sealed in accordance with ANSI A21.4 (AVWA C104-71). Interior of the ductile iron pipe shall be cement lined and bituminous coated.
- All piping and fittings to be used for potable water shall be NSF Standard 61 approved schedule 80 PVC and will meet or exceed all performance specifications of ASTM D-1785, when tested in accordance with ASTM D-2022. The basic material used in the manufacture of the proposed pipe conforms to ASTM D-1784 with a cell classification of 1E454 B, Type 1, Grade 1.
- All fittings 2" and smaller shall be schedule 80 PVC with solvent welded sleeve type joints unless otherwise noted (All PVC ball valves shall be true union).
- Contractor to install temporary blow offs at the end of the water service laterals to buildings to assure adequate flushing and disinfecting.
- Restraint joints shall be provided at all fittings and hydrants as shown on the details.
- Points of connection of the external water lines are to coincide with the building plumbing as shown on the building plumbing plans. Connection locations shown on these plans are approximate. It is the contractor's responsibility to coordinate the exact connection point.
- All PVC water mains shall have a suitable magnetic locator buried approximately one foot below grade over the force main. The tape shall be continuous between valves, and secured to each valve. The tape shall be at least 5 1/2 mls thick, 2 inches minimum width and made of aluminum material sandwiched between 2 layers of polyethylene. It shall be imprinted in permanent black ink with 1 inch letters, "CAUTION WATER LINE BURIED BELOW", on blue background.
- All water valves to be located in grassy areas.
- All ductile iron pipe and fittings to be poly wrapped.
- Contractor shall verify location of water service at each building prior to construction of service line.

TESTING AND INSPECTION REQUIREMENTS

- All components of the water system, including fittings, hydrants, connections, and valves shall be properly pressure tested and accepted by the engineer. Pressure tests to be done in accordance with Pasco County and AVWA standards. Contractor to notify the engineer 48 hours in advance of performing tests.
- Contractor to perform chlorination and bacteriological sampling. Copies of all bacteriological test to be submitted to the engineer. Locations of chlorination and sampling points to be submitted with test results along with as-built drawings.
- Minimum pressure for the hydrostatic and leakage tests shall be 150 psi for potable water main. In accordance with AVWA C600 for a minimum of 2 hours.

STANDARD PASCO NOTES

- All utility construction shall comply with the Pasco County standards for design and construction of water and wastewater facilities specifications, latest edition.
- All onsite water and sewer facilities shall be owned and maintained by the developer.
- Installation of fuel storage tanks requires review and approval by the fire marshal and the issuance of a separate building permit. Approval of the site plan does not constitute approval of the location of the fuel tanks.
- All proposed signs must be applied for, approved and permitted on an individual basis apart from any ultimately approved site plan. Approval of this site plan does not constitute approval of any signage.
- Handicap parking spaces will be properly signed and striped in accordance with Florida Statute 316, the manual on uniform traffic control devices, or other applicable standards.
- The architect/engineer certifies that the site has been designed in accordance with the American Disabilities act.
- All onsite parking spaces will be striped and signed in accordance with manual on uniform traffic control devices, shall be striped in white. It shall be the owner/developers responsibility to properly sign and stripe the site in accordance with applicable standards.
- The owner/developer acknowledges that this approval does not include any work in county right-of-way. All right-of-way work shall be a function of an approved Pasco county right-of-way use permit.
- All clear-site areas shall be kept free of any signage, plantings, trees, etc. in excess of three and a half (3 1/2) feet in height.
- No irrigation system or landscaping shall be installed in any county or state right-of-way without issuance of appropriate right-of-way use permit.
- The owner/developer acknowledges that the site and its subsequent building permits shall comply with all rezoning/NPUB/PUP conditions.
- All structures, including buffer walls, retaining walls, signage, etc. require separate building permits.



MATERIALS	
ITEM	DESCRIPTION
TYPE	CHAIN LINK
HEIGHT	6
FABRIC	8 GAUGE
POST	2-1/2\"/>
TOP RAILS	1-5/8\"/>
GATE	4\"/>
	FRAMEWORK (LOCATED AS INDICATED ON METER)
LATCH	SPCL. SHEET
	FORM TYPE - PADLOCK COMPATIBLE

FENCE SPECIFICATIONS

M. Y. Collins, P.E.
M. Y. Collins
 No. 05129
 1997

COLONIAL MANOR UTILITY
 PROPOSED BLENDING
 GENERAL NOTES & DETAILS
 PASCO COUNTY FLORIDA

4339 GROSS BAYOU BOULEVARD
 NEW PORT RICHEY, FL 34652
 (727) 948-8282 (727) 948-7701

6
 6
 0000-00.00

4

Spreadsheet calculates the cost to pump water per hour.

Given:

System pressure = 59 psi.
Average water demand = 116000 gpd
80.55556 gpm
Cost per k.w.-hr. \$0.104 k.w.-hr.

Pump Eff. 0.65
Motor Eff. 0.65
Head in feet = 136.29 feet

Find:

Cost per hour = \$5.11
Cost per month = \$3,677.57

Increased power cost associated with high service (system pressure) pump.

ESTIMATED ADDITIONAL COSTS FOR CHEMICALS

COLONIAL MANOR UTILITIES

NO.	ITEM DESCRIPTION	QUANTITY	UNIT PRICE	COST PER YEAR
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Operational

1	LIQUID CHLORINE	6.3 gpd	\$1.61	\$3,702.20
3	SALT	150 ppd	\$0.25	\$13,687.50

ESTIMATED COSTS FOR CHEMICALS

\$17,389.70

Flow Data

Plant average daily flow:
 Peak hourly demand:
 Plant peak hourly flow rate:

141,000	gpd
5,875	gph
98	gpm

Design the disinfection facilities to treat a peak hourly flow of 98 gpm

Chlorine Needed for Disinfection

Design Statement: The adequate dosage of chlorine will be determined by the operator in order to maintain a free chlorine residual of 0.2 mg/l throughout the distribution system in accordance with Rule 62-550.518(4), F.A.C.

Proposed method of chlorine addition:
 Proposed chlorine dosage:
 Amount of chlorine required for one day:
 Percentage sodium hypochlorite standard solution
 Specific gravity of sodium hypochlorite solution:
 Available chlorine in 10% sodium hypochlorite solution:
 Chlorine concentration in 10% sodium hypochlorite solution:
 Required 10% Sodium Hypochlorite dosage:

Liquid NaOCl	
4.0	mg/l
4.7	lb/day
10%	
1.14	
8.8%	by weight
0.74	lb/gal
6.3	gpd

Engineer Estimated
 = 8.34 x 1.5 mg/l x (98 gpm x 1440)
 Source: Manufacturer
 Source: Manufacturer
 Available Chlorine In X% Solution = X% / 1.14
 = 8.34 lb/gal x (1.14 x 0.10 + (1-0.10)) x 0.088
 = 4.7 lb/day / 0.74 lb/gal

Monthly Cost of Hypochlorite Solution

Cost of 10% hypochlorite solution **\$1.61** per gallon
 Est. annual cost of solution based on avg. flow demand = **\$3,702** per year

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PREMIUM SUMMARY

DATE OF ISSUE: 5/4/07
EFFECTIVE DATE: 5/25/07-5/25/08
NAMED INSURED: Holiday Utility Company, Inc.

<u>Coverage</u>	<u>Annual Premium</u>
<u>General Liability</u> Limits \$1,000,000 Occurrence/\$3,000,000 Aggregate. Medical \$5,000. \$2,000 Deductible Bodily Injury & Property Damage. Includes Failure to Supply and Product Contamination. Blanket Additional Insured.	Included
<u>Terrorism Inclusion Endorsements SD062 & SD029 or SD028</u> Terrorism aggregate limit after 12/31/07 will be \$1,000,000 for Property and General Liability if Congress does not renew TRIA.	Included
<u>Total</u>	\$ 1,959.00
State Surcharge	\$ 19.59
Policy Fee	\$ 200.00
Total Due in Order to Bind	\$ 2,178.59

**Optional Terrorism Premium of \$ 23.00 Included in Above Total. See attached Disclosure Form.
This Form must Be Completed at Time of Binding TO REJECT TERRORISM COVERAGE.**

Proposal Acceptance

COVERAGE WILL BE BOUND FOR 10 DAYS PENDING RECEIPT OF PAYMENT.

PLEASE CHECK APPROPRIATE LINE AND FAX BACK

PLEASE BIND WITH TERRORISM AS QUOTED ABOVE-1 YR TERM

**PLEASE BIND WITHOUT TERRORISM AS QUOTED ABOVE - 1YR TERM
(Signed Terrorism Form Must be Returned to Bind)**

PLEASE DO NOT BIND COVERAGE

Signature _____

Date _____

5/11/07

PLEASE BE ADVISED

ALL COVERAGE OVERVIEWS WITHIN THIS PROPOSAL ARE GIVEN HERE FOR ILLUSTRATIVE PURPOSES ONLY. PLEASE BE CERTAIN TO READ THE POLICY IN IT'S ENTIRETY FOR IT'S COMPLETE DETAILS, DEFINITIONS, TERMS AND CONDITIONS, LIMITATIONS AND EXCLUSIONS. INDICATIONS ARE JUST THAT, AND ARE SUBJECT TO FURTHER NEGOTIATIONS AND ADDITIONAL INFORMATION.

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C & C Consultants

Utility Insurance Specialists

Email

To: Joe Gabay
From: Lou Morrison/Hal Morrison
Email: JGabay@uswatercorp.com
Fax: 727-848-7701
Pages: 9
Phone: 727-848-8292 ext. 212
Date: 5/5/07
CC: Vickie Penick
Re: Holiday Utility Company, Inc./Commercial General Liability Renewal
Policy No: GWPKG0083300
Expires: 5/25/07

Dear Joe,

Attached is our renewal proposal for Holiday Utility Company, Inc. To bind coverage we will need the following items signed and faxed back to us:

1. Premium Summary Page
2. Terrorism Disclosure Statement (if coverage is rejected)
3. Commercial Insurance Application

The premium and fees are approximately \$ 46 less than the expiring coverage. If you have any questions, please give us a call.

Regards,


Lou Morrison
C&C Consultants

The information in this facsimile message is privileged and confidential, intended only for the use of the recipient. If the reader is not the intended recipient, he hereby notified that any copy or distribution of this communication is strictly prohibited. If you have received this communication in error, please notify the sender immediately by telephone.

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