May 4th

2005

KEY LARGO WASTEWATER TREATMENT DISTRICT BOARD OF COMMISSIONERS MEETING

AGENDA

Wednesday, May 4, 2005 at 5:00 PM
Key Largo Civic Club, 209 Ocean Bay Drive
Key Largo, FL

Charles Brooks	Chairman
Gary Bauman	Vice Chairman
Andrew Tobin	Secretary-Treasure
Glenn Patton	Commissioner
Claude Bullock	Commissioner

Charles F. Fishburn	General Manager
Thomas Dillon	District Counsel
Carol Simpkins	Board Clerk

PLEASE TAKE NOTICE AND BE ADVISED, that if any interested person desires to appeal any decision of the KLWTD Board, with respect to any matter considered at this meeting, such interested person will need a record of the proceedings, and for such purpose, may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. Persons with disabilities requiring accommodations in order to participate in the meeting should contact the Board Clerk at 305-451-5105 at least 48 hours in advance to request accommodations.

A. CALL TO ORDER

B. PLEDGE OF ALLEGIANCE

C. ROLL CALL

D. APPROVAL OF AGENDA WITH ANY ADDITIONS OR DELETIONS

E. CONSENT AGENDA

F. APPROVAL OF MINUTES

1. April 20, 2005 **(Action)** **TAB 1**

G. PUBLIC COMMENT

H. COMMISSIONERS COMMENTS

I. COMMISSIONER ITEMS

2.	Rules and Regulation Concerns, Commissioner Patton		**TAB 2**

J. FINANCIAL OFFICER'S REPORT

3.	Pending Payments List	**(Action)**	**TAB 3**
4.	Notice of Availability of SRF		**TAB 4**
5.	PRMG, Commercial		**TAB 5**

K. LEGAL COUNSEL REPORT

6.	Financial Advisor RFQ	**(Action)**	**TAB 6**

L. ENGINEERS REPORT

7.	Monthly Status Report	**TAB 7**
8.	Calusa Campground	**TAB 8**
9.	On-site Pilot Project	**TAB 9**

M. GENERAL MANAGER'S REPORT

10.	Sexton Cove/Lake Surprise Update	**TAB 10**
11	Airvac Change Order	**TAB 11**

12. SR Fee

ITEMS OF ONGOING CONCERN

1. Procedures
2. Agency Coordination

N. ADJOURNMENT

KEY LARGO WASTEWATER TREATMENT DISTRICT
Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 1

[ ] PUBLIC HEARING [ ] RESOLUTION

[ ] DISCUSSION [ ] BID/RFP AWARD

[X] GENERAL APPROVAL OF ITEM [ ] CONSENT AGENDA

[ ] Other:

SUBJECT: Minutes of April 20, 2005 Board Meeting

RECOMMENDED MOTION/ACTION: Approval of minutes with any needed additions, deletions or corrections.

Approved by General Manager C. J. Gr.
Date: 4-27-05

Originating Department: Board Clerk	Costs: Approximately $0 Funding Source: Acct. #	**Attachments:** Minutes of 4.20.05 meeting
Department Review: [X] District Counsel TM [X] General Manager CJG [ ] Finance _____	[X] Engineering EC [X] Clerk CG	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background:

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

MINUTES
Key Largo Wastewater Treatment District (KLWTD)
Board of Commisisoners Meeting

April 20, 2005
Key Largo Civic Club, 209 Ocean Bay Drive

The KLWTD Board of Commissioners met for a regular meeting on April 20, 2005 at 5:05 PM. Present were Chairman Charles Brooks, Commissioners, Glenn Patton, and Gary Bauman. Andrew Tobin arrived at 5:07 PM and Claude Bullock arrived at 5:23 PM. Also present were General Manager Charles Fishburn, Board Clerk Carol Simpkins, District Counsel Thomas Dillon, and all other appropriate District staff.

Chairman Brooks led the Pledge of Allegiance.

ADDITIONS/DELETIONS TO THE AGENDA.

The following changes were made to the agenda: Commissioner Bauman added two items, Discussion on a Plumber's meeting, and Magnetic Signs for the District Vehicle. Commissioner Patton added Status Reports on PRMG, Key Largo Park, Calusa Campground, and a Discussion on Rules and Procedures. Chairman Brooks added an item on Changing the Second Meeting Date in May.

Motion: **Commissioner Bauman made a motion to approve the agenda as amended. The motion was seconded by Commissioner Patton.**

Vote on motion:

Board Member	Yes	No	Other
Commissioner Gary Bauman	X		
Commissioner Claude Bullock			Absent
Commissioner Glenn Patton	X		
Commissioner Andrew Tobin	X		
Chairman Charles Brooks	X		

Motion passed 4 to 0

APPROVAL OF MINUTES

Motion: **Commissioner Patton made a motion to approve the minutes of the March 16, March 30, and April 6, 2005 minutes. The motion was seconded by Commissioner Bauman.**

Vote on motion:

Board Member	Yes	No	Other
Commissioner Gary Bauman	X		
Commissioner Claude Bullock			Absent
Commissioner Glenn Patton	X		
Commissioner Andrew Tobin	X		
Chairman Charles Brooks	X		

Motion passed 4 to 0

PUBLIC COMMENT: The following persons addressed the Commission: Steve Gibbs of Key Largo stated that he thought that Chairman Brooks delivered his message to the Key Largo Homeowners Federation Meeting loud and clear.

COMMISSIONER'S ITEMS

Sign for District Vehicle

Commissioner Bauman explained why he thinks that the District should have signage on its vehicle. The public should know that there is District personnel on site and they should see a phone number to contact the District.

Motion: **Commissioner Bauman made a motion to approve staff placing the identity on the District vehicle with a limitation of $250 in cost. Commissioner Patton seconded the motion.**

Vote on motion:

Board Member	Yes	No	Other
Commissioner Gary Bauman	X		
Commissioner Claude Bullock			Absent
Commissioner Glenn Patton	X		
Commissioner Andrew Tobin	X		
Chairman Charles Brooks	X		

Motion passed 4 to 0

Motion: **Commissioner Bauman made a motion to approve placing the District Logo on all correspondence, documents, memos, business cards, and interagency communications. Commissioner Patton seconded the motion.**

Vote on motion:

Board Member	Yes	No	Other
Commissioner Gary Bauman	X		
Commissioner Claude Bullock			Absent
Commissioner Glenn Patton	X		
Commissioner Andrew Tobin	X		
Chairman Charles Brooks	X		

Motion passed 4 to 0

Commissioner Bauman requested that the Monroe County be removed from the Logo. The Board by consensus directed that the Monroe County be removed from the KLWTD official logo.

What's Next

Chairman Brooks asked the Board members their thoughts on what the District would do if the 20 million dollars did not come through from the County and/or if the 20 million dollars from the County does come through but there is no other funding after that what do they see the District doing.

Commissioner Bauman stated that he thinks that if no Federal, State, or County grant monies come through in at lease a 50 to 60 percent area them the District should close down new projects.. There should be no new projects. Nothing should be done until the monies are allocated. If the District only gets 20 million of the 35 million dollar project then the District should bond the connection fees proceeding through the Sexton Cove / Lake Surprise Project.

Commissioner Bullock said he is not sure that he would agree with closing down new projects. He is of the opinion that the District should prepare plans and specification, get the engineering done that is needed for the entire Island of Key Largo. That puts the District in a position that says if more monies come in the District is ready to proceed. The District might be able to bond out the monthly rates to obtain the necessary funding to complete all construction engineering. The rates will have to be compared with the rest of the County for equality. The whole picture needs to be looked at before a decision is made to not go any further.

Commissioner Patton has not contemplated the idea of (to much) not receiving the $20 million from the Bond from the County. He stated that the Board could be a little bit more pro-active in regards to getting more community support; and be more in your face with the Governor, and the State Legislature and Homeowners Associations. He feels the Board needs to educate the public and let them know what a good package the KLWTD has for them. He stated that the feedback that he has received from Commissioner

Nelson has been very positive of the financial, engineering, and basic total business plan that was presented to him at a meeting on April 18, 2005. Commissioner Nelson needs support to insure that the State will follow through on their portion of the funding. Commissioner Patton feels that the District is in an excellent position to move forward. If the 20 million does not come through the District can still move forward with the engineering and be pro-active in regards to being ready to go when the money does materialize. The District can only do what it has money to do. He does not think that the Community will go for funding the system totally like the rest of the State does.

Chairman Brooks stated that Commissioner Nelson is using the District's 20 million which was promised to the District hooks free. Commissioner Nelson is putting in the hooks. If the State comes through with 30 million dollars then the money would be available but not until then.

Commissioner Tobin stated that he liked Commissioner Nelson's thinking.

Chairman Brooks then stated that there is a possibility (by one Commissioner) that the 20 million may not materialize and it may come in the form of State money not County Bond money through infrastructure in the form of 14 million that may or may not come from the State in 2007 or 2008.

Commissioner Tobin stated that the reason he likes Commissioner Nelsons hurtle is that it is good negotiating tactics if the County is going to put in 20 million dollars then that is a good opportunity for the State to fish or cut bait. Everything that the District has been doing has been premised on the fact the County is going to give the District 20 million dollars. If they are not going to give the District 20 million dollars then the District has to go back to the drawing board and figure it out. We will have to retool and figure out the next step. Chairman Brooks asked Commissioner Tobin what his position would be if he was faced with the fact the District would not be getting the 20 million dollars; would he sign a contract for engineers for the Sexton Cove / Lake Surprise Project. Commissioner Tobin stated that the District could not afford it but he would want to think about it more and talk to staff. He is concerned with getting from 800 EDU's; below 800 EDU's we are not stabilized. He would like to stabilize enough of a sewer district that could maintain itself. The District could not shut down but it cannot go around hiring multi million dollar Engineering firms without cash flow and a larger EDU basis. He would look to take on a smaller project to bring the EDU's up to 2000 to maintain the District and stabilize and figure out were the next funding source would be coming from.

Commissioner Bullock stated that the District could get a good estimate for a special assessment and secure that fund for strictly engineering. He is convinced that at one time or another, the Engineering will have to be done. He feels that as a responsible Board they should be working towards meeting the 2010 mandate. If the District is doing the design work whether or not anything is being built then the Board is working towards that goal. The District needs to do what it takes to be sure that the funding is in place to

take care of operating expenses and design cost to take the District through the next project to where the District will make the award to the Engineers.

Rules and Procedures
Commissioner Patton proposes that the Board puts on the next agenda an item for discussion as to what the Boards concerns are with in the Rules and Regulation; for example, vacant lots, laundromats, and commercial connection fees.

Commissioner Tobin is most anxious to get a handle on rates. The rates have to be settled to settle projects and financing. Anything that can be done to settle the rates should be done, the sooner the better.

Commissioner Bullock explained that the Board is right back at the same issue. The Board should sit down knowing what it takes to operate, knowing what it is going to take to continue with projects and operation of the Treatment Plant. He does not see getting rid of any staff at the moment even if the 20 million does not come through. The minimum project that should be planned for is to take care of the operating cost for several years beyond the end of having the present projects on-line. If there is design money available the District should continue doing design work for the next several years and then say this is as far as the District can go and then wait for more funding. This would be his rock bottom as to what the Board should do as a responsible Board trying to achieve the 2010 mandate. If the mandate is changed them the schedule of funding should be reviewed.

Chairman Brooks asked if he meant that the Board should look at what the dollar capacity is and what the design would accomplish and that would be the finish line until additional funding is supplied. Commissioner Bullock agreed.

Commissioner Bauman stated that PRMG has not given the Board any number yet. The Rules and Procedures are needed but no data has been supplied yet.

Commissioner Patton stated that he felt that certain Rules and Procedures can be agreed upon without having the numbers equation related to the actual rates. Commissioner Bauman stated the he would like to know the financial impact each decision will have before it is implemented. PRMG is being paid to provide that information to the Board and it is not available yet.

Chairman Brooks said that he reported to the Federation of Homeowner's meeting that the he said that the connection fee may be $4770 and he had made it very, very clear that the number is only a hypothetical number and is not cut in stone. Mr. Gibbs picked up on the statement that Commissioner Bauman made concerning that it may be done for less. Commissioner Bauman responded that he has stated that he feels it is premature to talk about the cost until all of the numbers are in.

Chairman Brooks told Staff that the Board is hungry for the information that they need to set the rates, policy, and procedures. The true cost may not be known until the design is

finished and until such time the numbers that the District are working with are hypothetical.

Commissioner Patton said that PRMG is putting together a total build out for the Island based on numbers from Staff. The Rules affect the Rates and the Rates affect the Rules, which comes first. He feels that the Board can move forward with the numbers that are available. When PRMG gives the Board the numbers it is a guess and the Board can do some of that themselves.

Commissioner Bullock explained that to make a decision on a lot tonight or tomorrow the District would need the bold financial expenditure guess. This might mean that the District will have to turn around and say that they have to grab every nickel and dime all the way along the line and it will have to be distributed across the whole board. Concerning giving the laundromats a break he is not sure that is a good idea at this point until he sees what the big project is going to be and what it is going to be funded against. A decision has to be made to go beyond the projects that are currently on the board because that decision is going to be the point that will be scaled to and the designs will be taken through to that point. The District needs the funds for the design for the entire Island; that way the State cannot come back and say that the District gave up on the State. The District will be able to say that they have not given up on the State but have taken the design out to the year 2010 so if the State comes along with some money the District will be able to build.

Chairman Brooks brought to the Board's attention that at the BOCC Meeting Mayor Dixie Spehar had a resolution to create a committee between the FKAA and the County that passed at the BOCC meeting. The document refers to what they are doing for unincorporated Monroe County that includes Key Largo. The Committee would review all RFP and contraction contracts in unincorporated Monroe County. Chairman Brooks is concerned with the confusion that it may cause. He has respectfully requested of the County that the resolution more accurately describes the areas in which the resolution is intended to govern.

The County Administrator had requested that he be authorized to enter into discussions with the incorporated areas and special districts to establish a cooperative purchasing and bid agreement and to offer Countywide services where economy of scale brings financial incentives to both parties.

Chairman would like to change the second meeting date in May to the 26th of the month instead of the 18th. The Board agreed by consensus to move the second May meeting to the 26th.

FINANCIAL OFFICER'S REPORT

Pending Payments List

Financial Officer Martin Waits presented the pending payment list for April 20, 2005.

Motion: **Commissioner Tobin made a motion to approve the pending payments list for April 20, 2005 subject to the availability of funds. The motion was seconded by Commissioner Patton.**

Vote on motion:

Board Member	Yes	No	Other
Commissioner Gary Bauman	X		
Commissioner Claude Bullock	X		
Commissioner Glenn Patton	X		
Commissioner Andrew Tobin	X		
Chairman Charles Brooks	X		

Motion passed 5 to 0

LEGAL COUNSEL REPORT

District Counsel Thomas Dillon reported that the RFQ for a Financial Advisor will be in at the end of the week and a copy of each one will be distributed to the Board Members.

Mr. Dillon said that the has attended his first official Florida Keys National Marine Sanctuary Board meeting as a member on April 19, 2005.

ENGINEERS REPORT

Ed Castle, District Engineer, reviewed the progress on the Key Largo Trailer Village. The completed streets have been paved and cleaned up. The contractor is still setting pits and trenching vacuum lines. They will be putting vertical steel up at the treatment plant in a week.

There was a complaint from a resident in the Key Largo Trailer Village which was sent to the FDEP. They have responded with favor to the District.

On Site Pilot Project

General Manager Charles Fishburn reported that there will be a presentation by Eco Smart on May 4 and the application will be submitted on May 15, 2005 for a project.

GENERAL MANAGER'S REPORT

CDBG Late Application

There was one application turned in late.

Motion: **Commissioner Tobin made a motion to accept the late application and it be processed after the "on time" applications have been processed. Commissioner Bullock seconded the motion.**

Vote on motion:

Board Member	Yes	No	Other
Commissioner Gary Bauman	X		
Commissioner Claude Bullock	X		
Commissioner Glenn Patton	X		
Commissioner Andrew Tobin	X		
Chairman Charles Brooks	X		

Motion passed 5 to 0

Septic Tank Abandonment Permits
General Manager Charles Fishburn gave a report on a meeting that staff had with the Health Department on what the District would have to do to issue the Septic Tank Abandonment Permits.

Commissioner Bullock asked if the aerobic systems could be used as cisterns instead of disabling them. Commissioner Tobin agreed with the idea. Ed Castle reported that he has looked into the abandonment procedures, had met with FDEP and that they were not going to allow use of the tanks as cisterns. The homeowner has to get FDEP to allow them to do it. The tanks could float out of the ground if the water level gets to low. He also stated that the cost of the process could be as high as $250.00.

Mr. Fishburn explained that the tanks could be core drilled and filled with sand leaving them in a state were the owner could use them at a latter date.

Commissioner Bauman requested a complete report on the true cost of the septic tank abandonment permit process.

Chairman Brooks stated that he is dynamically opposed to taking on the Health Department's responsibility. It is taking on a responsibility that the District does not need.

Plumber Meeting
Staff was directed to have the first plumbers meeting late in May.

PRMG
General Manager Charles Fishburn reviewed a preliminary schedule from PRMG.

Commissioner Tobin is interested in having a report that would show what would happen if all of the hotels were removed from the commercial, what does that do to the daily flows.

Commissioner Bauman questioned the Government use of water. It was suggested that schools contribute a large amount of the government usage. District Counsel Thomas Dillon is going to look into the question whether a school can be required to connect to the sewer system as well as checking with Bob Feldman on the legality of an onsite system declaring that they are an investor owned utility and therefore do not have to hook up to the system.

The Board discussed the use of deduct meters.

Commissioner Tobin requested that Staff present PRMG with different scenarios to use for calculations.

General Manager Charles Fishburn explained that if the Board would set a connection charge then PRMG could better set up scenarios. The Board stated that they are not comfortable with setting a connection charge yet. Mr. Fishburn said that the commercial will be addressed at the May 4th meeting.

Commissioner Bauman would like to see how other places that are similar to Key Largo have handled different scenarios.

General Manager Charles Fishburn explained his concern over the possibility of not getting the $20 million from the County Bond. Commissioner Patton pointed out that he has had extensive conversations about the $20 million with Commissioner Nelson and he is assured that the District will get the $20 million. Commissioner Nelson wants the matching money from the State that was within the DCA agreement: it was in the original resolution.

Chairman Brooks clarified the process that he has gone through. He went to Key West in the beginning of the year (2005) at the County's invitation, with Mr. Fishburn. The County was proposing $20 million for Key Largo and $20 for Big Coppitt Key. He asked how fast the process could be done. The County said that it would take 30 or 60 days. They would open an account for Key Largo for $20 million on a reimbursement basis. There were no string attached to the $20 million dollars, none what so ever. Commissioner Tobin explained that there were strings attached to the agreement between the County and the State. Chairman Brooks said that all the negotiations to the current point have been that the $20 million is coming to the KLWTD. The fotmer County Administrator Jim Roberts, the new County Administrator Tom Willi, the Bonding Agent, and the FKAA were at the meeting and Chairman Brooks raised the question, "Is there anything in this agreement that is connected to the DCA Agreement or is there anything in the agreement that the pending lawsuit on the DCA Agreement that could hold the money up?" He was told that is separate and it was not subject to that.

Chairman Brooks has talked to Commissioner Nelson and he said that he would support Mr. Brook's position but he would need two more votes on the Board. The District is negotiating an agreement with the County at this point which has no mention of the State DCA Agreement and the Environmental lawsuits that may be holding it up. Chairman

Brooks asked Financial Officer Martin Waits to explain what is going on with the SRF funding. Mr. Waits explained that the District had applied to for the SRF funding based on the fact that the District would have the $20 million dollars from the County which would help justify the total project. Without the $20 million the District would not have a project and without the project the District could not get the SRF preconstruction loan to design the project.

Chairman Brooks stated that he does not want the taxpayers of Key Largo and the fact that the District needs to move forward to survive to be sacrificed because the County is trying to force the State to fulfill their agreement. At the last BOCC meeting in Key Largo it was stated that the BOCC did not want to hold up the KLWTD and the Inter-local agreement because of what was happening in the Lower Keys.

Commissioner Patton agreed with Chairman Brooks that the $20 million should not have any strings attached to it. At various public forums the BOCC Board has indicated that they are committed to the $20 million for Key Largo. Commissioner Patton recommends that the Board should have a resolution presented to the BOCC at the May 18th meeting that would fund through the bonding process the engineering phase and say that the District will be back in the Fall for the rest of the monies.

General Manager Charles Fishburn would like to see the Inter-local Agreement presented at the May 18th meeting.

Chairman Brooks stated that he does not want to go to the BOCC with a lesser agreement than an agreement for all of the $20 million. The Board agreed with him. District Counsel Thomas Dillon was directed to proceed on his side to try and get the Inter-local agreement on the BOCC agenda for May 18, 2005.

Key Largo Park
The contract will be signed after the meeting. There was a soft preconstruction meeting held with the contractor and they will begin the Key Largo Park Project on May 1st.

Calusa Campground
Mr. Fishburn reviewed a letter with three recommendations for the campground including the recommendation from the Engineer on the technically correct way to connect to Calusa Campground.

ADJOURNMENT
After a motion to adjourn by Commissioner Tobin and a second by Commissioner Patton the Board adjourned the meeting at 9:00 PM.

The KLWTD meeting minutes of April 20, 2005 were approved on May 4, 2005.

_____

Chairman Charles Brooks

_____

Carol Simpkins, CMC
Board Clerk

KEY LARGO WASTEWATER TREATMENT DISTRICT

Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No.

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[X]	DISCUSSION	[ ]	BID/RFP AWARD
[ ]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[ ]	Other:		

SUBJECT: Rules and Regulation Concerns

RECOMMENDED MOTION/ACTION: Discussion

Approved by General Manager C.J. Patton
Date: 4-27-05

Originating Department: Commissioner Patton	Costs: Approximately $ Funding Source: Acct.	**Attachments:**
Department Review: [ ] District Counsel _____ [X] General Manager C.J.P. [ ] Finance _____	[ ] Engineering_____ [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: Commissioner Patton placed this item on the agenda.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

KEY LARGO WASTEWATER TREATMENT DISTRICT

Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 3

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[ ]	DISCUSSION	[ ]	BID/RFP AWARD
[X]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[ ]	Other:		

SUBJECT: Pending Payments list for May 4, 2005

RECOMMENDED MOTION/ACTION: Motion to approve pending payments list for May 4, 2005 contingent upon available funds.

Approved by General Manager C. J. Martin

Date: 4-27-05

Originating Department: Finance	Costs: $ Funding Source: Acct. #	**Attachments:**
Department Review: [ ] District Counsel _____ [X] General Manager C.J.M. [X] Finance MW	[ ] Engineering_____ [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____; Please initial one.

Summary Explanation/Background: The pending payment list will be emailed to you when Mr. Martin returns to town. A hard copy will be supplies at the meeting.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

KEY LARGO WASTEWATER TREATMENT DISTRICT

Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 4

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[ ]	DISCUSSION	[ ]	BID/RFP AWARD
[ ]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[x]	Other:		

SUBJECT: Notice of Availability / SRF Preconstruction Funding

RECOMMENDED MOTION/ACTION: Information

Approved by General Manager C.J.

Date: 4-29-05

Originating Department: Finance	Costs: $ Funding Source: Acct. #	**Attachments:** Copy of Notice from SRF
Department Review: [ ] District Counsel _____ [X] General Manager C.J. [X] Finance MW	[ ] Engineering_____ [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: The DEP on April 13, 2005 added the KLWTD Sexton Cove preconstruction funding to the list of fundable wastewater projects for FY 2005. (See last page of attachment).

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Colleen M. Castille
Secretary

MEMORANDUM

COPY

TO: Affected Parties

FROM: Don W. Berryhill, P.E., Chief
Bureau of Water Facilities Funding

DATE: April 20, 2005

SUBJECT: Notice of Availability – Final Agency Action

This is to provide you with notice of availability of the *Notice of Final Agency Action* pertaining to actions taken by the Department of Environmental Protection at its April 13, 2005 public hearing. The purpose of the hearing was to take final action on issues involving management of the Fiscal Year (FY) 2005 Water Pollution Control State Revolving Fund (SRF) Priority List under Rule Chapter 62-503, Florida Administrative Code. In taking these actions, the Department obligates SRF monies that are available or expected to be available in FY 2005. These obligations are made to specific project sponsors who have met program eligibility requirements, as shown on the fundable portion of the priority list.

The *Notice of Final Agency Action*, and the priority list as amended, may be obtained from the Bureau's SRF web site at http://www.dep.state.fl.us/water/wff/cwsrf.

If you have any questions about the status of a project on the FY 2005 Water Pollution Control SRF priority list, please call Bob Holmden or Mike Murphree at SUNCOM 205-8358 or 850-245-8358.

DWB/gpp

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN RE:

State Revolving Fund (SRF) Loan Program:)
Management of the Fiscal Year 2005)
Water Pollution Control Priority List)

Case No.: 050413/FDEP

RECORD OF FINAL AGENCY ACTION

On April 13, 2005, the Department of Environmental Protection (the Department) held a public hearing in Room 611 of the Twin Towers Office Building, 2600 Blair Stone Road, Tallahassee, Florida. Don Berryhill, Chief, of the Bureau of Water Facilities Funding, served as Hearing Officer. Bob Holmden, Program Administrator, of the Bureau of Water Facilities Funding, presented staff recommendations on issues involving management of the Fiscal Year (FY) 2005 Water Pollution Control SRF Priority List.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

1. Notice of the public hearing and its purpose was published on the Department's Internet site www.dep.state.fl.us on March 11, 2005. The Water Pollution Control SRF Priority List schedules projects to be financed with loans from the SRF. It is developed annually and adopted by the Department under the provisions of Chapter 62-503 of the Florida Administrative Code (F.A.C.). The rule also provides for certain list management activities, including withdrawal of projects which fail to meet Rule requirements, authorization of additional funds to projects already on the list, and adding new projects to the list.

Mr. Holmden submitted the *SRF Priority List Issues and Recommendations* (attached hereto as *Exhibit A*) to be entered into the record of the hearing. Referencing this exhibit, Mr. Holmden summarized the Department's recommendations for management of the Water Pollution Control SRF Priority List by:

a) Removing projects from the list which have failed to meet Rule requirements

b) Adding project increases to the fundable portion of the FY 2005 priority list

c) Adding new projects to the fundable portion of the FY 2005 priority list

In addition, Mr. Holmden testified that the City of Niceville had submitted documents, including a preliminary permit issued by the Northwest Florida District on April 11, 2005, which completed their eligibility requirements for a position on the fundable portion of the list. He recommended that the Project WW12050625S be added to the bottom of the priority list with a default minimum priority score of 100.00 points for a construction loan in the amount of $1,121,000.

There being no further comment, Mr. Berryhill accepted these recommendations for management of the priority list and directed staff to prepare the written Record of Final Agency Action, including the priority list as amended.

FINAL AGENCY ACTION

The recommendations presented in the Findings of Fact and Conclusions of Law are adopted. The FY 2005 Water Pollution Control SRF Priority List is hereby amended.

A person whose substantial interests are affected by the Department's proposed decision may petition for an administrative proceeding (hearing) under sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received by the clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Petitions by the applicant or any of the parties listed below must be filed within twenty-one days of receipt of this written notice. Petitions filed by any persons other than those entitled to written notice under section 120.60(3) of the Florida Statutes must be filed within twenty-one days of

publication of the notice or within twenty-one days of receipt of the written notice, whichever occurs first.

Under section 120.60(3) of the Florida Statutes, however, any person who has asked the Department for notice of agency action may file a petition within twenty-one days of receipt of such notice, regardless of the date of publication.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with rule 28-106.205 of the Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

(a) The name, address, and telephone number of each petitioner; the Department case identification number and the county in which the subject matter or activity is located;

(b) A statement of how and when each petitioner received notice of the action;

(c) A statement of how each petitioner's substantial interests are affected by the Department action;

(d) A statement of the material facts disputed by the petitioner, if any;

(e) A statement of facts that the petitioner contends warrant reversal or modification of the Department action;

(f) A statement of which rules or statutes the petitioner contends require reversal or modification of the Department action; and

(g) A statement of the relief sought by the petitioner, stating precisely the action that the petitioner wants the Department to take.

A petition that does not dispute the material facts on which the Department's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by rule 28-106.301, FAC.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under section 120.573 of the Florida Statutes is not available for this proceeding.

This action is final and effective on the date filed with the Bureau of Water Facilities Funding unless a petition is filed in accordance with the above. Upon the timely filing of a petition this action will not be effective until further action of the Department.

Any party to the order has the right to seek judicial review of this agency action under section 120.68 of the Florida Statutes, by the filing of a notice of appeal under rule 9.110 of the Florida Rules of Appellate Procedure with the Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida, 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the notice is filed with the Clerk of the Department.

DONE AND RECORDED on this _____ day of _____, 2005,

in Tallahassee, Florida.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

_____

Mimi Drew, Director
Division of Water Resource Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
Phone 850-245-8336

EXHIBIT A

F WATER POLLUTION CONTROL PRIORITY LIST ISSUES AND RECOMMENDATIONS for the April 13, 2005 hearing for management of the fiscal year 2005 Water Pollution Control priority list of projects. The list will be managed pursuant to Rule Chapter 62-503, Florida Administrative Code (F.A.C.). The Department may assign additional funds to on-going projects that remain incompletely funded, or place new projects on the fundable portion, if funds are available. The Department may also remove projects from the fundable portion of the list if they are delinquent in submitting documents as required by the rules.

1. Ch. 62-503.600(4) Removals – Pursuant to the rules, projects which have not submitted a complete loan application within 120 days or have failed to execute a binding loan agreement within 210 days of the hearing at which they were added to the fundable portion of the list will be removed from the list. The projects currently subject to removal are:

Project Sponsor	Project #	Priority Score	Loan Type	Application/ Agreement Deadline Date	Loan Amount
Cape Coral	WW120675165	30.00	Wastewater – Construction	03/02/2005	$21,983,000
Noma*	WW12085301P	130.00	Wastewater – Preconstruction	03/02/2005	$ 10,000
Emerald Coast UA	WW12081607P	126.00	Wastewater – Preconstruction	02/10/2005	$ 7,530,000
Winter Garden*	WW12039810P	111.00	Wastewater – Preconstruction	02/10/2005	$ 479,000
Lauderhill	SW12089406S	114.00	Stormwater – Construction	02/10/2005	$ 1,725,000
Bunnell*	WW12084305P	114.00	Wastewater – Preconstruction	02/10/2005	$ 56,000
Archer*	WW12089102P	113.00	Wastewater – Preconstruction	02/10/2005	$ 210,000
				TOTAL REMOVALS	$31,993,000

Note: Cape Coral and Noma have failed to meet their loan agreement deadline of 03/02/2005. Emerald Coast UA, Winter Garden, Lauderhill, Bunnell and Archer have failed to meet their loan application deadline of 02/10/2005.

Staff recommends removal of these projects. The funds assigned to these projects will be returned to the Fund for use by other qualifying projects.

2. Increase Requests –

- The City of Fort Lauderdale has requested funding for Part 2 of their on-going Major Sewer Rehabilitation Project. The planning document including this scope of work was approved by the Department on June 25, 2003. The plans and specifications for this Part 2 were approved on March 22, 2005.
- The City of St. Marks has requested a loan increase for their on-going construction project, based on bid overruns.

Project Sponsor	Project #	Priority Score	Loan Type	Loan Agreement Target Date	Fundable Amount
Fort Lauderdale	WW12047440S/1	565.00	Wastewater – Construction (Increase)	11/09/2005 •	$11,758,000
St. Marks*	WW12078505S/1	115.00	Wastewater – Construction (Increase)	11/09/2005 •	$ 352,000
				TOTAL INCREASES	$12,110,000

• By rule, the Target Date for agreements/amendments is 210 days after the hearing date, but increase amendments are initiated by the Department and it is expected that this amendment will be executed not later than June 30, 2005.

Staff recommends adding these Projects to the bottom of the fundable portion after Dade City Project WW12067005P.

3. New Project Requests (Timely Submittal) - Local governments submitting timely Requests for Inclusion for new projects to be added to the fundable portion of the FY 2005 priority list are:

Project Sponsor	Project #	Priority Score	Loan Type	Loan Agreement Target Date	Fundable Amount
Frostproof*	WW12060009P	122.00	Wastewater – Preconstruction	11/09/2005	$ 377,000
St. Pete Beach*	WW12069613P/1	112.00	Wastewater – Construction	11/09/2005	$ 3,312,000
Volusia County	WW12061710P	111.00	Wastewater – Preconstruction	11/09/2005	$ 564,000
Sanford	WW12058625S	109.00	Wastewater – Construction	11/09/2005	$18,520,000
Marco Island*	WW12071503P	106.00	Wastewater – Preconstruction	11/09/2005	$ 4,035,000
				TOTAL NEW TIMELY PROJECT REQUESTS	$26,808,000

recommends adding these projects to the bottom of the fundable portion of the list after St. Marks Project WW12078505S/1 from Issue 2

ISSUES AND RECCOMENDATIONS

e Two

4. New Project Requests (Late Submittal) – Local governments submitting Requests for Inclusion for new projects to be added to the fundable portion of the FY 2005 priority list, but which failed to meet the March 14 document submittal deadline are:

Project Sponsor	Project #	Priority Score	Loan Type	Loan Agreement Target Date	Fundable Amount
Welaka*	WW12088103P	706.00	Wastewater – Preconstruction	11/09/2005	$ 219,000
Vernon*	WW12057707P/3	700.00	Wastewater – Construction	11/09/2005	$ 4,143,000
Treasure Island*	WW12053601P	552.00	Wastewater – Preconstruction	11/09/2005	$ 1,403,000
Minneola*	WW12089601P/2	336.00	Wastewater – Construction	11/09/2005	$11,231,000
East County WCD	SW12010903P	134.40	Stormwater – Preconstruction	11/09/2005	$ 300,000
Lake Placid*	WW12078703P/1	125.00	Wastewater – Construction	11/09/2005	$ 929,000
Jacksonville WSEA	WW12050001P	124.80	Wastewater – Preconstruction	11/09/2005	$ 9,261,000
Wauchula*	WW12062419P	120.00	Wastewater – Preconstruction	11/09/2005	$ 728,000
Ponce Inlet*	SW12040101P/1	114.00	Stormwater – Construction	11/09/2005	$ 1,640,000
Key Largo*	WW12046401P	107.00	Wastewater – Preconstruction	11/09/2005	$ 2,670,000
			TOTAL NEW LATE PROJECT REQUESTS		$32,524,000

Staff recommends adding these projects to the bottom of the fundable portion of the list after Marco Island Project WW12071503P from Issue 3 above.

5. Waiver Requests - The City of Bunnell has requested a fundable portion listing for a construction loan for which planning, design, and site certifications have been completed, but for which the Environmental Review Document (EID) 30-day comment period has not expired and permits have not been issued. They have requested a waiver of the 30-day EID comment period (Ch. 62-503.750(1)(a), F.A.C.), to enable the project to be listed at this hearing.

Project Sponsor	Project #	Priority Score	Loan Type	Loan Agreement Target Date	Fundable Amount
ell*	WW12084306S	351.00	Wastewater – Construction	11/09/2005	$1,069,000
			TOTAL WAIVER REQUESTS		$1,069,000

Staff recommends adding this project to the fundable portion of the list after Key Largo Project WW12046401P from Issue 4 above if all required permits have been issued by the date of the hearing, and with the added limitation that a binding loan agreement not be offered until the 30-day EID comment period has expired without unresolved adverse comment.

* Small Community <20,000 population

KEY LARGO WASTEWATER TREATMENT DISTRICT
Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 5

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[X]	DISCUSSION	[ ]	BID/RFP AWARD
[ ]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[ ]	Other:		

SUBJECT: Commercial and Residential report from PRMG

RECOMMENDED MOTION/ACTION: Information

Approved by General Manager C. J. Lu
Date: 4-29-05

Originating Department: Finance	Costs: $ Funding Source: Acct. #	**Attachments:**
Department Review: X District Counsel TD X General Manager C. J. L X Finance MW	X Engineering EC [ ] Clerk____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: Tony Hairston of PRMG will present the latest recommendation for system development fees, monthly base charges and flow charges for both commercial and residential customers. He will show the impact of these fees on the operation of the District.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

Key Largo Wastewater Treatment District

System Development Charge and Rate Workshop

May 4, 2005

Presented by

Public Resources Management Group, Inc.

System Development Charge Methodology

SDC Application

For equitable allocation of construction costs, the SDC needs to be 2 separate components:

Connection charge + Capacity charge

Capacity Charge

1. Capacity Charge

- Typically based on system-wide treatment plant and transmission main costs
- Applied per EDU, larger customers pay higher amount
- Proposed Capacity Charge = $2,700/~~connection~~ EDU
- Ties to estimated project costs (March 30, 2005 presentation, p. 12)
- Normal practice in Florida for impact fee design is to include the allocated treatment plant and "backbone" transmission cost
  - New development provides collection infrastructure (e.g. neighborhood collection system for new home construction)
  - Additional charge if utility provides collection system or line extension
    - Additional charge would be based on average unit cost; or actual cost on case-by-case basis

Connection Charge

2. Connection charge

- Based on collection system costs
- Applied per connection, not based on flow
- Equitable to larger customers
- Cost per connection (not EDU) = approximately $8,700
- Approx. $4,500 per connection, after applying grants
- Proposed Connection Charge = only $2,070/connection
  - Constraint of $4,770 for total (connection + capacity)
  - (affordability index in grant agreements)
  - Uncertainty regarding level of future grants

Application of Capacity Charge

Application Methodology	Pros	Cons
1 Flows based on historical usage records (either water, or package plant data, if applicable)	Based on empirical data for actual customers being served. Readily available data.	Water use does not necessarily correspond to wastewater demand (outdoor/irrigation uses)
2 Flows Based on F.A.C 64E Attributes (e.g. flow per seats, rooms, sq. feet, etc.)	Based on industry standards on sizing wastewater facilities.	Difficult to survey existing establishments. Some may not easily be categorized.
3 Flows Based on Plumbing Fixtures (Southern Plumbing Code)	Based on industry load demand standards.	Does not reflect type of usage (attributes). Difficult to survey existing establishments.
4 Meter Size (AWWA equivalent ratios)	Easiest to administer. Used by many FL utilities	Larger meters have diverse usage characteristics. Does not fully capture differences in capacity needs.

Recommended Capacity Application

- Flow demand based on historical water usage records for non-residential customers
  - Corresponds to plant capacity design
  - Non-residential, 1 EDU = 167 gallons per day (based on highest 3 month average)
  - Appeals process for "difficult" scenarios
    - e.g. Use attributes table (FAC 64E) as a basis for appeals
  - No need to survey fixtures or attributes of existing customers
  - Residential = 1 EDU/unit

Residential Example

Residential (not condo)

1 EDU

	PRMG Proposal	Other Method A	Other Method B	Other Method C
Connection Charge	**$ 2,070**			
No. of Connections	1			
Total Connection	$ 2,070			
Capacity Charge	**$ 2,700**	**$ 2,700**	**$ 3,500**	**$ 4,770**
Factor (EDUs based on flow)	1	1	1	1
Total Capacity Charge	$ 2,700	$ 2,700	$ 3,500	$ 4,770
Total Connection + Capacity	**$ 4,770**	**$ 2,700**	**$ 3,500**	**$ 4,770**

Small Commercial Example

Small Commercial

2 EDUs (based on flow)

	PRMG Proposal	Other Method A	Other Method B	Other Method C
Connection Charge	**$ 2,070**			
No. of Connections	1			
Total Connection	$ 2,070			
Capacity Charge	**$ 2,700**	**$ 2,700**	**$ 3,500**	**$ 4,770**
Factor (EDUs based on flow)	2	2	2	2
Total Capacity Charge	$ 5,400	$ 5,400	$ 7,000	$ 9,540
Total Connection + Capacity	**$ 7,470**	**$ 5,400**	**$ 7,000**	**$ 9,540**

Restaurant Example

Restaurant

25 EDUs (based on flow)

	PRMG Proposal	Other Method A	Other Method B	Other Method C
Connection Charge	**$ 2,070**			
No. of Connections	1			
Total Connection	$ 2,070			
Capacity Charge	**$ 2,700**	**$ 2,700**	**$ 3,500**	**$ 4,770**
Factor (EDUs based on flow)	25	25	25	25
Total Capacity Charge	$ 67,500	$ 67,500	$ 87,500	$ 119,250
Total Connection + Capacity	**$ 69,570**	**$ 67,500**	**$ 87,500**	**$ 119,250**

Laundromat Example

Laundromat

29 EDUs (based on flow)

	PRMG Proposal	Other Method A	Other Method B	Other Method C
Connection Charge	**$ 2,070**	———	———	———
No. of Connections	1			
Total Connection	$ 2,070			
Capacity Charge	**$ 2,700**	**$ 2,700**	**$ 3,500**	**$ 4,770**
Factor (EDUs based on flow)	29	29	29	29
Total Capacity Charge	$ 78,300	$ 78,300	$ 101,500	$ 138,330
Total Connection + Capacity	**$ 80,370**	**$ 78,300**	**$ 101,500**	**$ 138,330**

Marina Example

~~Laundromat~~
MARINA

10 EDUs (based on flow)

	PRMG Proposal	Other Method A	Other Method B	Other Method C
Connection Charge	**$ 2,070**			
No. of Connections	1			
Total Connection	$ 2,070			
Capacity Charge	**$ 2,700**	**$ 2,700**	**$ 3,500**	**$ 4,770**
Factor (EDUs based on flow)	10	10	10	10
Total Capacity Charge	$ 27,000	$ 27,000	$ 35,000	$ 47,700
Total Connection + Capacity	**$ 29,070**	**$ 27,000**	**$ 35,000**	**$ 47,700**

Resort/Hotel Example

Resort/Hotel

182 EDUs (based on flow)

	PRMG Proposal	Other Method A	Other Method B	Other Method C
Connection Charge	**$ 2,070**			
No. of Connections	1			
Total Connection	$ 2,070			
Capacity Charge	**$ 2,700**	**$ 2,700**	**$ 3,500**	**$ 4,770**
Factor (EDUs based on flow)	182	182	182	182
Total Capacity Charge	$ 491,400	$ 491,400	$ 637,000	$ 868,140
Total Connection + Capacity	**$ 493,470**	**$ 491,400**	**$ 637,000**	**$ 868,140**

Monthly Wastewater Rate Methodology

Monthly Rate Methodology Options

Non-Residential Base Rate Application Methodology	Pros	Cons
1 Meter Size (AWWA equivalent ratios)	Easiest to administer. Used by many FL utilities/FPSC	Larger meters have diverse usage characteristics. Does not fully capture
2 EDUs based on Capacity Charge Method (Same rate for all commercial based on avg. commercial class usage characteristics)	Customer specific Most equitable	Higher administration costs. Must maintain individual account records and recalculate with redevelopment

Recommended Monthly Rate Methodology

- Use EDUs developed as part of capacity calculation
  - Non-residential, 1 EDU = 167 gallons per day (based on highest 3 month average)
  - Residential Units = 1 EDU
- The alternative of meter size for non-residential is acceptable, but may understate capacity requirements (could result in lower commercial monthly base rates, higher residential monthly rate)

Financial Modeling and Monthly User Rates

Financial Model

- Projection period - Fiscal Year 2005 through 2009
- "Cash Flow" model
- Customer forecast
  - Customer connections
    - KLTV, KLP, and Calusa Campground during FY2006 (including approx. 61 commercial EDUs)
    - Lake Surprise, Largo Gardens, and along US 1 Corridor during FY2008 and FY2009
  - Projected treatment requirements (gpd = annual flow/365)
    - FY2006 = 74,000 gpd
    - FY2007 = 148,000 gpd
    - FY2008 = 289,000 gpd
    - FY2009 = 456,000 gpd
    - Links to customer forecast

Financial Model (con't)

- System Development Charges
  - "Baseline" assumptions
    - Capacity Charge = $2700/EDU
    - Connection Charge = $2070/Connection
    - Forecast assumes 15% pay full SDC upfront, the remaining pay an assessment over 20 years
      - KLTV, KLP, Calusa Campground assessments begin in FY06
      - Others begin in FY07
    - SDC revenues through FY07 are applied directly to construction costs, thereby lowering borrowing need

Capital Funding Assumptions

13,000 – 15,000

Funding Source	Amount
Grants	12,878,000
Monroe County Bond Issue [1]	20,000,000
Upfront System Development Charges [2]	3,520,000
SRF Loan Proceeds	14,110,000
Total Construction through FY09 [3]	50,508,000

3 TM

[1] No repayment assumed (i.e. additional KLWTD grant funds)

[2] Assumes 15% of assessed properties pay entire SDC upfront rather than multi-year. Also reflects use of initial year assessments toward construction costs.

[3] Reflects KLTV, KLP, Calusa, and Sexton Cove Project (incl. 2.25 MGD Plant and Wastewater Main). Amount includes $480,000. contingency during construction.

SRF Loan Assumptions

- SRF construction loan agreement in FY2006
- Total proceeds = $14,110,000
- Total loan principal = $15,005,000
  - Reflects loan service fee (to FDEP) and capitalized interest cost during construction
- Semi-annual payments begin FY2009
  - Payments begin after construction completed
  - Annualize payments = $1,055,800/yr.
  - Assumes 3.5% annual interest rate (conservative)
  - Required that net revenues > 1.15x annual debt service

Financial Model (cont'd)

- Operating and Maintenance (O&M) expenses
  - Initial plant operations
    - Treatment and collection system O&M = $303,000/yr.
  - System-wide plant operations (begin FY08)
    - Treatment and collection system O&M = $1,016,000/yr.
  - Plus administrative/billing/customer service costs

Financial Model (cont'd)

- Other considerations
  - MSTU revenues
    - Current Budget = $827,685
    - Forecast Assumes level MSTU revenues through FY07
    - Only uses a portion of available MSTU revenue (e.g. FY06 assumes use of $470,000)
      - Limited to planning activities
      - Assumes most administrative costs are planning related (i.e. MSTU reimbursable) through FY07 (when current MSTU tax expires)
      - No MSTU revenues relied on in FY09, but $320,000 used in FY08 (assumes unused prior year collections may be used)
  - Assumes system becomes self-supportive with rates by FY2009

Financial Model (cont'd)

- Other considerations
  - Renewals & Replacements (R&R) Funding
    - Forecast assumes KLWTD sets up an R&R Fund
    - R&R Fund is a dedicated funding source for renewal and replacement of system assets as they deteriorate
    - R&R Fund is funded through a portion of rate revenue annually
    - Typically 5% - 7.5% of rate revenue
    - Forecast assumes R&R funding equal of 5% annually
    - Standard utility practice, often a requirement for obtained revenue bond financing

Projected Revenue Requirement through Fiscal Year 2009

KLWTD Wastewater System		Projected Fiscal Year Ending September 30, 2005	2006	2007	2008	2009
Total Operating Expenses		549,272	753,987	980,537	1,554,838	1,663,358
Debt Service Payments		0	0	0	0	1,055,768
R&R Expenditures/Other Expenditures		0	24,900	99,800	63,100	145,600
Gross Revenue Requirements		549,272	778,887	1,080,337	1,617,938	2,864,726
Less:						
Miscellaneous Revenues		0	14,670	2,450	24,360	6,410
Use of MSTU Revenue		549,272	474,000	491,000	320,000	0
Use of Assessments for Debt Service	*	0	0	0	0	810,253
Use of Cash Reserves		0	0	0	20,000	0
Net Revenue Requirements		0	290,217	586,887	1,253,578	2,048,063
Average Monthly Rate per EDU	*	$0.00	$47.00	$47.00	$51.00	$54.00
EDUs (monthly avg. over 12 months)		0	528	1,056	2,062	3,259
Annual Wastewater Rate Revenue		$0	$297,792	$595,584	$1,261,944	$2,111,832
Estimated Revenue Surplus/(Deficiency)		$ (0)	$ 7,575	$ 8,697	$ 8,366	$ 63,769

*** Assumes Capacity Charge of $2,700/EDU plus Connection Charge of $2,070/connection.**

Wastewater Rate Design

- Average rate is an approximation, next step is to design the actual base and usage charges
- Steps
  - Identify "test" year for designing rates
    - FY07 >> first full year of initial customers
  - Identify cost level
    - Financial model results for test year (revenue requirement)
    - Classify costs between base charge and usage charges
    - Compile appropriate statistics for customer base
      - Base charge "equivalents" for base charges
      - "revenue gallons" for usage charges

Wastewater Rate Design (cont'd)

Target FY07 Revenue Based on
Projected Revenue Requirement $ 596,000

Amount to be recovered from…

Base Charges	Usage Charges
71.8%	28.2%
$ 428,000	$ 168,000

EDUs		1,051	Annual 1000 Gallons		31,894
Per EDU/Month	**$**	**33.94**	**per 1000 Gallons**	**$**	**5.27**

Residential Monthly Bills

Usage (Kgals)	Base Rate	Usage Charge	Total Bill [1]	# of Bills [2] %	# of Bills [2] Cumulative
0	$34.00	$0.00	$34.00	15.1%	15.1%
1	34.00	5.30	39.30	25.0%	40.1%
2	34.00	10.60	44.60	14.9%	55.0%
3	34.00	15.90	49.90	13.4%	68.4%
4	34.00	21.20	55.20	10.2%	78.6%
5	34.00	26.50	60.50	7.1%	85.7%
6	34.00	31.80	65.80	4.9%	90.6%
7	34.00	37.10	71.10	3.1%	93.7%
8	34.00	42.40	76.40	3.1%	96.9%
9	34.00	47.70	81.70	0.8%	97.6%
10	34.00	53.00	87.00	1.1%	98.7%
11	34.00	58.30	92.30	0.9%	99.7%
12	34.00	63.60	97.60	0.3%	100.0%

[1] Amount does not reflect system development charge assessment. Max. residential usage capped at 12,000 gallons metered water use.

[2] Based on historical usage data for KLTV and KLP.

Example Monthly Commercial Bill

10 EDUs

Usage (Kgals)	Base Rate	Usage Charge	Total Bill [1]	Average Rate per 1000 Gallons
0	$340.00	$0.00	$340.00	N/A
1	340.00	5.30	345.30	$345.30
10	340.00	53.00	393.00	39.30
20	340.00	106.00	446.00	22.30
30	340.00	159.00	499.00	16.63
40	340.00	212.00	552.00	13.80
50	340.00	265.00	605.00	12.10
100	340.00	530.00	870.00	8.70

Comparison of Alternative SDC Methods on Average Rates

KLWTD Wastewater System Projected FY09	Proposed ($2700 Capacity $2070 Conn.)	Alternative "combined" SDC Method $2,700	$3,500	$4,770
Total Operating Expenses	1,663,358	1,663,358	1,663,358	1,663,358
Debt Service Payments	1,055,768	1,124,370	1,063,156	971,686
R&R Expenditures/Other Expenditures	145,600	161,200	149,500	137,800
Gross Revenue Requirements	2,864,726	2,948,928	2,876,014	2,772,844
Less:				
Miscellaneous Revenues	6,410	6,410	6,410	6,410
Use of MSTU Revenue	0	0	0	0
Use of Assessments for Debt Service	810,253	561,070	727,379	971,686
Use of Cash Reserves	0	0	0	0
Net Revenue Requirements	2,048,063	2,381,448	2,142,225	1,794,748
Average Monthly Rate per EDU	**$54.00**	**$62.00**	**$56.00**	**$47.00**
EDUs	3,259	3,259	3,259	3,259
Annual Wastewater Rate Revenue	$2,111,832	$2,424,696	$2,190,048	$1,838,076
Estimated Revenue Surplus/(Deficiency)	$ 63,769	$ 43,248	$ 47,823	$ 43,328

Conclusions/Recommendations

- System Development Charges
  - Capacity Charge = $2,700 per EDU
  - Connection Charge = $2,070 per connection (not EDU)
  - Total charge for typical residential (not condo) = $4,770
  - Total charge for other customers typically consist of 1 connection charge + (capacity charge x EDUs)
- Monthly Wastewater Rates
  - Non-residential base charges are calculated on EDUs (from capacity calculation) x residential base rate
- Rate Study
  - Document the findings in report (financial forecast, assumptions, summary customer statistics, capacity/connection charges, initial monthly rates)
  - Provide financial tools developed during the project to District staff as requested

KEY LARGO WASTEWATER TREATMENT DISTRICT

Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 6

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[X]	DISCUSSION	[ ]	BID/RFP AWARD
[ ]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[ ]	Other:		

SUBJECT: Financial Advisor

RECOMMENDED MOTION/ACTION: Appointment of Southeastern Investment Securities, Inc. as District Financial Advisor.

Approved by General Manager C. J. [illegible]

Date: 4-24-05

Originating Department: Legal	Costs: $ Funding Source: Acct. #	**Attachments:** Memo from Tom Dillon
Department Review: [X] District Counsel TD [X] General Manager CJ-2 [X] Finance MW	[ ] Engineering_____ [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: The SOQ's for the three firms submitting for the District Financial Advisor were delivered to Board Members Friday. The recommendation by staff is attached.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

MEMORANDUM

FROM: Thomas M. Dillon

To: Key Largo Wastewater Treatment District

Date: April 26, 2005

Subject: Financial Advisor

This will transmit my recommendation for a Financial Advisor, based on my review of the Statements of Qualifications, conversation with the District Finance Officer, and contacts with references supplied by each of the candidate firms.

My recommendation is Southeastern Investment Securities, Inc. ("SIS").

The attached table shows a summary of the salient features of the SOQ's submitted by the candidates. It shows that all of them have 30 years or more experience in providing financial advice, and all of them are well-qualified to do so.

Three major factors influenced my recommendation:

First, RBC Dain Rauscher ("RBC") and The PFM Group ("PFM") are national firms that spend a lot of effort on large bond issues. SIS is a Florida firm that seems focused on Florida public finance issues. I am of the opinion that smaller firms are generally more responsive than larger firms, and more efficient at providing services.

Second, only SIS has extensive experience in financing through the State Revolving Fund ("SRF"). PFM's submittal does not include any reference to the SRF. RBC has some experience with SRF, in that it refinanced an SRF loan for Cape Coral. SIS prepared the FKAA loan application for SRF financing. SIS claims to have a working relationship with SRF personnel and experience in obtaining variances from some of the SRF rules.

Third, SIS offers the services of its principal, Richard T. (Toby) Wagner. Mr. Wagner enjoys a reputation for providing excellent service and providing creative advice to his clients.

District Finance Officer Martin Waits has also provided input in this recommendation, as shown on the attachment.

Characteristic	PFM Group	RBC Dain-Rauscher	Southeastern Investment
Date of Organization	1975	1909	1973
Principal Office Location	Philadelphia; Fort Myers	Fort Lauderdale	Orlando
SRF Experience - sewers	N/A	Cape Coral refinancing with a bond issue Miami-Dade Water & Sewer	FKAA – Marathon
Bond Experience - sewers	Boca Raton Brooksville Clay County Clermont Crystal River Davie Delray Beach Jacksonville Electric Auth. Key West Lee County Marion County Melbourne Miami-Dade County Riviera Beach Sanibel Sebring South Seminole/North Orange St. John's County Volusia County Winter Park Winter Springs	Cape Coral Clearwater Collier County Delray Beach Fernandina Beach Hernando County Martin County Miami Beach Nassau County Okeechobee Utility Authority Pinellas County Port St. Lucie Stuart Vero Beach	FKAA City of Port Orange City of Kissimmee TOHO
Potential Conflicts	Monroe County	None known	FKAA

Characteristic	PFM Group	RBC Dain-Rauscher	Southeastern Investment
Fee Basis for $15,000,000 bond issue - general	Debt Transaction management: $17,500 minimum Financial Planning: hourly Special Services: Negotiated fee Investment Management: negotiated fee	Cap of $29,500 per transaction	
Transaction Fee	$1.00/1000 = $15,000 Min Charge: $17,500		$1.50/1000 = $22,500
Hourly Rates	Managing Director: $180 Sr. Managing Consultant: $170 Consultant: $160 Plus Expenses	Managing Director: $250 Principal/VP: $200 Associate: $150 Admin: $50 Plus Expenses	Principal $135 Analyst $90 Admin $70 Plus Expenses
Waits Comments	#2 – bond oriented, project manager not a partner; Florida orientation	#3 – bond oriented, experience mostly larger issues	#1 – best approach, diversity of experience, including SRF, best rates, Florida orientation, least concentrated in large financing
Other	Experience in improving credit rating of various clients		

KEY LARGO WASTEWATER TREATMENT DISTRICT

Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 7

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[x]	DISCUSSION	[ ]	BID/RFP AWARD
[ ]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[ ]	Other:		

SUBJECT: Monthly Status Report

RECOMMENDED MOTION/ACTION: No action required

Approved by General Manager C.J.M.
Date: 4-27-05

Originating Department: Engineering	Costs: $ Funding Source: Acct. #	**Attachments:** Mo. status report
Department Review: [ ] District Counsel _____ [X] General Manager C.J.M. [ ] Finance _____	[X] Engineering EC [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background:

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

THE WEILER ENGINEERING CORPORATION

"Excellence in Engineering"

20020 Veterans Boulevard., Suite 7
Port Charlotte, FL 33954
(941) 764-6447 ph
(941) 764-8915 fax

Key Largo Wastewater Treatment District
Engineering Status Report
Period Ending 04/26/05

Client Issues

Key Largo Park

AirVac continued work on reprofiling the Brown & Caldwell design of the KLP collection systems to meet the AirVac standards. The first two sets of revised sheets were delivered in April. The remaining revised sheets will follow shortly.

ADB has provided the required payment and performance bond and has entered into a contract to perform the work. An initial pre-construction meeting was held on April 20th with ADB and District Staff.

Key Largo Village

Installation of vacuum pits and gravity service laterals continued in April. The Contractor focused on installing pits on the streets that already had vacuum mains run in order to finish those streets off and begin paving. After catching up on these streets, the crews moved onto Park Drive, installing vacuum mains. It is expected that installation of vacuum pits will follow shortly behind installation of vacuum mains on the remainder of the streets, allowing for completion of the streets and repaving in a more timely manner.

KLV Treatment Plant

Trenches were cut for the electrical, water and sewer yard piping. Pipes and conduits were installed. This allowed for concrete work to continue, with placement of grade beams and base slabs occurring in this period.

Lake Surprise Project

The Board approved the Manager's ranking of the engineering firms for the two tasks at the first Board meeting in April. Since that time, meetings have been held with the first

ranked firms for each task to discuss the scope of work. Each of the firms were provided with the requested information and are in the process of drafting their proposals and pricing. WEC requested that the firms provide details of estimated manhours and rates for each sub-task to be included with their proposals. As of the end of this reporting period, the proposals have not yet been received.

EPA Demonstration Project Grant

After attending a Project Delivery Team meeting with Chairman Brooks and Manager Fishburn, WEC recommended to the District that they pursue the $3.8 M grant. This money is intended to be used to demonstrate that a centrally managed wastewater system consisting of on-site and small cluster systems can effectively achieve 2010 effluent standard if properly operated and maintained. The Manager was of the opinion that the demonstration project was inappropriate at this time. The Board asked for a volunteer to provide more information regarding the program, and Margaret Blank volunteered. Additional information is to be provided at the May 4th Board meeting. The deadline for application is May 15th.

Calusa Campground

The Board requested an update on the status of connection of Calusa Campground to the KLWTD vacuum system. At the April 20th Board meeting, WEC presented a technical recommendation, but refrained from providing a recommendation on whether or not the District should perform portions of the work on the Calusa property at public expense. WEC has provided a memorandum detailing items for consideration by the Board and a recommendation regarding this issue.

Haskell Pay Applications

The Haskell pay applications for March was received in this reporting period. After several discussions and requests for additional information, a final pay amount was agreed upon. All requested documentation was supplied. Haskell Pay Application No. 18 was approved for payment at the March 20th Board meeting.

Regulatory Compliance Issues

WEC was informed via email that the KLTW wastewater treatment plant permit had been issued on April 22nd, but a copy has not yet been provided to WEC. On receipt, we will review the permit to ensure that the errors from the draft permit have been corrected.

Project Team Meetings and Actions

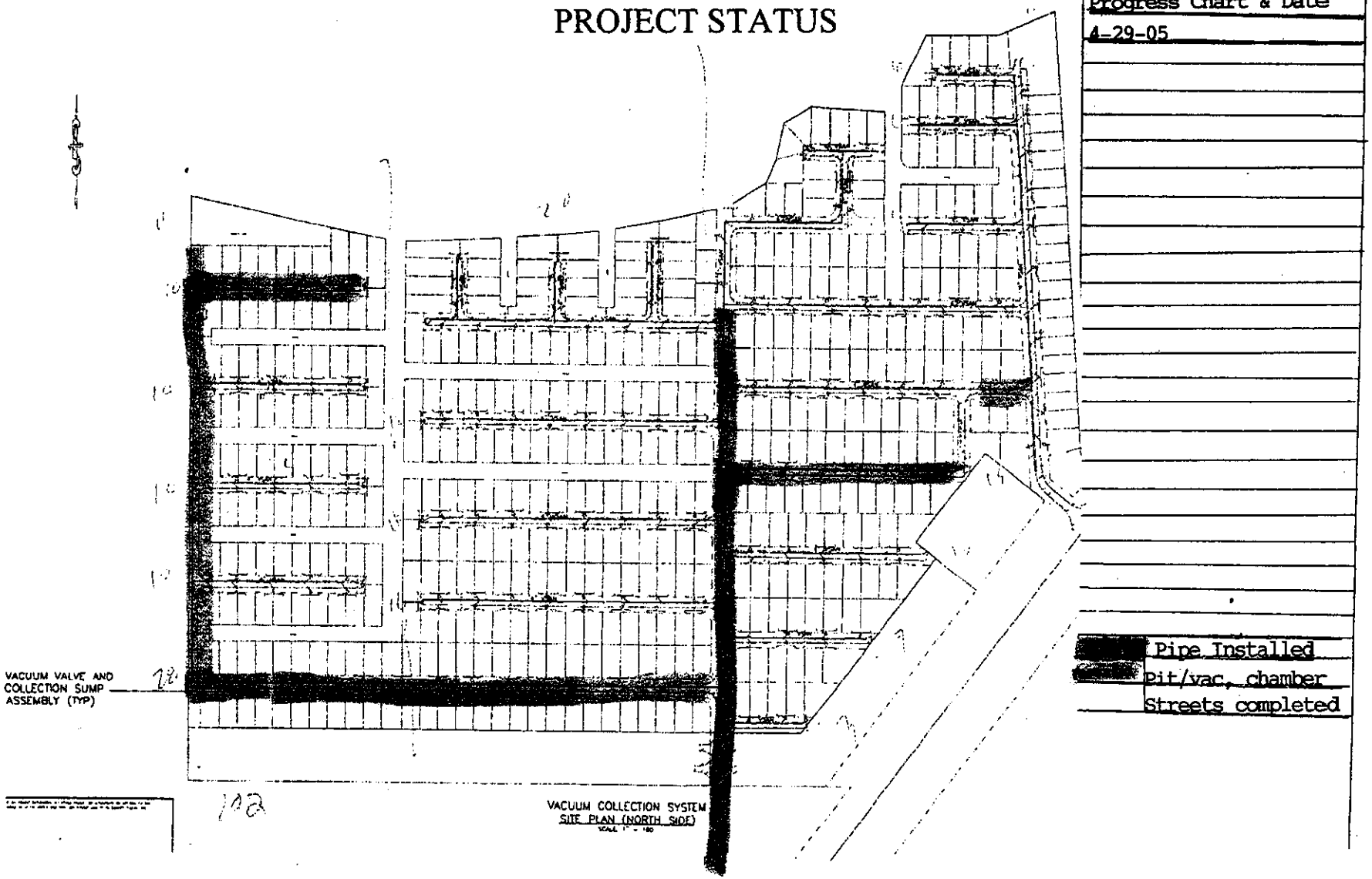
Ed Castle attended the regularly scheduled Board meetings on April 6th and 20th. He also met with KLWTD staff on the 6th and 20th prior to the Board meetings. He also

conducted the Key Largo Park preconstruction meeting on April 20th and attended the Haskell construction progress meeting on the same day.

Ed Castle and Dan Saus performed construction inspection throughout the period.

KEY LARGO TRAILER VILLAGE

PROJECT STATUS



Progress Chart & Date

4-29-05

Pipe Installed

Pit/vac, chamber

Streets completed

KEY LARGO WASTEWATER TREATMENT DISTRICT
Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 8

[ ] PUBLIC HEARING [ ] RESOLUTION

[ ] DISCUSSION [ ] BID/RFP AWARD

[ ] GENERAL APPROVAL OF ITEM [ ] CONSENT AGENDA

[ ] Other:

SUBJECT: Calusa Campground

RECOMMENDED MOTION/ACTION:

Approved by General Manager C. J. Zu
Date: 4-24-05

Originating Department: Engineer	Costs: $ Funding Source: Acct. #	**Attachments:** Report from Ed Castle
Department Review: [ ] District Counsel _____ [X] General Manager CJZ [ ] Finance _____	[X] Engineering EC [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: Calusa Campground comes down to two possible connection choices.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

THE WEILER ENGINEERING CORPORATION

"Excellence in Engineering"

6630 Front Street, Stock Island
Key West, Florida 33040
(305) 295-3301 ph
(305) 295-0143 fax

MEMORANDUM

To: KLWTD Board

From: Ed Castle, P.E.

Date: April 27, 2005

Re: Calusa Camp

At the last meeting, we tabled the discussion of options for connecting Calusa Camp to the KLWTD vacuum sewer system. As stated, I recommend Alternative No. 1 from the Calusa Camp report. This option consists of a vacuum system to be extended onto Calusa Camp property and all new laterals to each unit.

There are two approaches to installation of the system under discussion. These are:

1. The Calusa Camp property owners can install all components to be located in both the common areas and on their individual lots at their cost.
2. The KLWTD can provide the vacuum components in the common areas using public funds, with each property owner being required to install the laterals on their lots at their cost.

Technically, either of these approaches results in the same system, so in that respect, they are equal. Note that regardless of who installs the system, I recommend that the District assume operation and maintenance responsibilities in easements to be granted in the common areas.

As the District's Engineer, I will provide some comments regarding these options.

Expenditure of public funds to install wastewater infrastructure on private property is not generally done, with the exception of financial assistance to low-income individuals. The reasons it is not done relate to issues of equity and the proper use of public funds in the best public interest.

Best Public Interest – When considering using District funds to install vacuum mains and pits on the Calusa Camp property, the Board should consider how the general public benefits by the expenditure. Possible benefits include additional revenue from the System Development Fees and monthly O&M fees that can be collected, thereby lowering the capital and O&M costs to all customers. However, Calusa Camp will be required by County Ordinance No. 04-2000 to connect to the KLWTD vacuum system once service is made available via the vacuum main at their property line. The System

Development Fees and monthly O&M fees will be owed without the expenditure of public funds on the private property owned by Calusa Camp.

Equity – The issue of equity can be seen from two different viewpoints. On the one hand, in publicly owned streets such as in KLTV and KLP, a cleanout is provided for each building at the property line. If the District does not install the vacuum system within Calusa Camp, a cleanout will not be provided by the District for each RV at their lot line. This can be viewed as inequitable treatment of the individual property owners at Calusa Camp. On the other hand, if the District extends lines onto private property at Calusa Camp, but does not do so in KLTV or KLP (or Tradewinds Plaza, the Sheraton or other commercial properties), this can also be viewed as inequitable treatment.

If the District elects to, and is legally able to, extend sewer lines onto the private property at Calusa Camp, the following possible scenarios may bear consideration:

- Will all other residential properties be provided with similar infrastructure using public funds? Condo associations? Gated communities? Apartment complexes? Trailer parks where the residents own the trailer but rent the lot? Trailer parks where an investor owns both the trailers and lots and collects rent from tenants? Transient RV parks and camp grounds? Marinas with live-aboard slips?

- If infrastructure is provided on private property for some or all of the above using public funds, can the District justify not bringing the lines onto private property at hotels, restaurants and other commercial properties?

- Some home owners in KLTV have complained about not having their cleanouts located at the point of their preference. If the District did not accommodate these property owners, can spending of public funds on private property at Calusa Camp be justified?

FKAA Approach – The FKAA was attempting to address this problem in Marathon by proposing to allow owners of commercial residential properties to choose whether or not the wastewater infrastructure would be provided on their property at project expense. However, there were conditions attached to the options.

- If the property owners elected to provide easements and have the FKAA install the sewer mains and cleanouts, the FKAA would also install a new water system with individual meters for each residence. Each residence would then get a water bill and a sewer bill for a full EDU.
- If the property owner elected not to have the FKAA install the sewer system, the owner would be required to do so at the owner's expense. However, the property would then be billed as a commercial property, receiving a single sewer bill based on the commercial rate structure.

Billing - The KLWTD should also consider impacts of the District's future rate structure on billing of commercial and residential properties. Generally, if there is a flow based component of the sewer bill, a water meter reading is used to determine that portion of

the monthly bill. However, there are developments and commercial properties with multiple single-family units that are serviced by a master water meter. This is currently the case at Calusa Camp, which is served by a single water service. The individual RV lots do not have water meters, without which billing for the flow-based component could be problematic if each RV lot is considered to be a separate customer. The best solution would be to have the FKAA install water meters at each lot. Alternatively, each lot could receive a bill that includes $1/367^{th}$ of the total water consumption from the master meter as the flow based component each month, but this may invite complaints from the seasonal residents. The simplest alternatives would be to have a fixed monthly bill (with no flow component) for all single family residential units, or to treat Calusa Camp as a commercial customer.

It should also be noted that both Chapter 64-E 6 FAC and the Monroe County Uniform Connection ordinance define the flow for an RV lot as 75 GPD. This is equivalent to 0.45 EDU, based on the County standard that an EDU is 167 GPD. With these documents available, owners of RV lots may contest being charged as a full EDU.

Non-technical recommendation – Over the years, many bodies have had to address the problems discussed above. In the end, most have come to the same conclusions and developed similar policies and rate structures. The Board should carefully weigh the pros and cons when considering an action that is atypical of generally accepted policies. Public money is typically not spent to provide wastewater infrastructure on private property. My recommendation is that the District make sewer service available in accordance with Monroe County Ordinance No. 04-2000 to all properties in the District. This is a fair and equitable method and does not spend tax payer dollars for improvements on private properties.

GRANT APPLICATION

EPA AWT?

KEY LARGO WASTEWATER TREATMENT DISTRICT
Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 9

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[X]	DISCUSSION	[ ]	BID/RFP AWARD
[]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[ ]	Other:		

SUBJECT: On Site Pilot Project

RECOMMENDED MOTION/ACTION: Staff needs direction from the Board on whether to proceed with an application for the EPA $5.1 million onsite decentralized wastewater system demonstration project.

Approved by General Manager C. J. Lu
Date: 4-29-05

Originating Department: Engineer	Costs: $ Funding Source: Acct. #	**Attachments:**
Department Review: [ ] District Counsel _____ [X] General Manager C.J.L. [ ] Finance _____	[X] Engineering MB [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: FKAA and Monroe County have studied On-site Decentralized Wastewater Systems in the past. Their reports are attached. Orenco Systems Inc. will make a presentation on their proposal for On-site systems.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

Memo

To: KLWTD Board Members

From: Margaret Blank

CC: Chuck Fishburn

Date: April 29, 2005

Re: $3.8M Pilot Study Grant

Introduction

I was instructed by Charlie Brooks, Chairman of the Key Largo Wastewater Treatment District Board to research the possibility of applying for the above-mentioned grant. This grant will be awarded by the EPA for a demonstration project for the centralized management of decentralized wastewater treatment systems. The application deadline for this grant is May 15, 2005. Therefore a decision to apply for the grant must be made at tonight's meeting.

Technology Overview

The technology chosen must treat effluent to the following standard:

BOD5	10 mg/l
TSS	10 mg/l
TN	10 mg/l
TP	1 mg/l

It also must keep costs down and be conducive to centralized management. Mike Saunders from Orenco Systems, Inc. will discuss one such system at length. A copy of his presentation is included in the agenda package.

Study Sites

Since the KLWTD is planning to provide centralized sewer to nearly all of Key Largo, there are only two locations where a decentralized system could be considered.

SR-905: This area contains approximately 114 developed lots, according to an FKAA grant proposal, dated May 2001. Most of the developed lots contain single family homes and are located in two neighboring subdivisions, Gulfstream Shores and Ocean Reef Shores.

Manatee Bay/Monroe Park: This area contains a variety of land uses including, single family homes, RV sites, and marinas. It is partially served by a 0.005 MGD extended aeration package plant. There are several single family homes that appear to have conventional on-site treatment systems.

I recommend that the SR-905 be chosen as the sole study site if the board decides to apply for the grant. The single family homes in this area can be expected to produce domestic wastewater of predictable quantity, strength and composition. The nature and quantity of the wastewater at Manatee Bay/Monroe Park is more difficult to foresee. It would be difficult to say how this could impact any small on-site system. In addition, the condition of the existing collection system will be impossible to evaluate before the grant deadline.

Feasibility

A detailed proposal, prepared by Steve Holmes of Ecosmart, Inc., along with the EPA application package has been enclosed for your review.

We face several obstacles in successfully completing this project if the grant is awarded:

1. The study sites located in Key Largo are not ideal for the study. The ideal study area would contain approximately 150 developed lots. It is likely that another centralized management entity, such as Marathon, will be awarded the grant.

2. Additional resources will be needed to oversee the construction and engineering work required by the grant. (See the attached RFQ prepared by Monroe County.) We also need personnel to monitor, maintain, and prepare reports for the system once it's operating.

3. Additional resources will be required to effectively compare appropriate technologies. If we are going to meet the May 15 deadline, we'll have to go with Orenco's products as the design standard.

4. The amount to be awarded is $3.8M. The KLWTD is required to come up with $1.2M in additional funds.

5. Pursuing this project will divert time and resources away from much larger ongoing projects, including construction and design of the wastewater treatment plant, construction in Key Largo Trailer Village and Key Largo Park, and design of Sexton Cove transmission system.

6. This technology is an excellent solution for these small outlying areas. The KLWTD may provide this type of wastewater treatment in the future.

My recommendation is that we not pursue this grant.

Monroe County Onsite Decentralized Wastewater System Demonstration Project Feasibility Study

Prepared for

March 2003

CH2MHILL

Monroe County Onsite Decentralized Wastewater System Demonstration Grant

Conditions that make the demonstration grant a valuable asset to Monroe County

- Cost to onsite users in "Cold Spot" areas substantially greater (at least twice) than cost to central sewer users
  - ➢ Projected monthly cost, without subsidy (grants)
    - ✓ Onsite User: $105 - $326/month
    - ✓ Central sewer user: $52 - $148/month
- Approximately 1,100 users in "Cold Spot" areas will remain on onsite systems when the Master Plan is fully implemented
- No other area in the country has more stringent treatment and effluent standards for onsite systems
  - ➢ Makes onsite user costs extremely high

Purpose of the onsite decentralized wastewater system demonstration grant - To show that the Onsite Decentralized Wastewater Utility Concept is the most Economical Means to Operate and Manage Onsite Wastewater Systems in Monroe County

- Determine the amount of reduction that is possible with the utility concept for both installation and operation and maintenance costs
- Determine a balance between site visit/inspection frequency and the ability of the onsite systems to meet the treatment standards
- Evaluate the ability of remote monitoring and management systems to reduce frequency of site visits, and thus overall operating costs
- Determine the number and type of personnel required to operate and manage the onsite utility that has sophisticated onsite treatment systems
- Develop and refine onsite wastewater utility management concepts
- Develop and refine legal/institutional requirements and policies

Requirements for the onsite decentralized wastewater system demonstration grant

- Funds to be used to cover 75% of the costs for design, construction, monitoring, operation and maintenance, and administering decentralized onsite systems
- Funds must be used in areas where the decentralized systems are the "permanent" solution, i.e. where these systems will not be replaced by central sewers during the life of the system (15 years)
- Funds can be used for the establishment of an administrative entity with responsibility for construction, oversight, ongoing maintenance, and financial administration
- Projects funded should be consistent with the Wastewater Master Plan

Potential study sites

- Big/Middle Torch Keys - 61 properties
- Pine Heights, Big Pine Key - 42 properties
- Silver Shores Estates, Ramrod Key - 10 properties
- Northeast part of Summerland Key - 8 properties
- Pine Key Acres, Big Pine Key - 26 properties
- Long Beach, Big Pine Key - 44 properties

Demonstration grant budget

• EPA grant	$3.8 million
• Local share (25%)	$1.27 million
• Total	$5.07 million

Contents

Tables

Figures

APPENDICES

GLOSSARY

BOCC	Board of County Commissioners
DOH	Department of Health (Florida)
DWTS	Decentralized Wastewater Treatment Systems
ENR	Engineering News Record
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
O&M	Operation and maintenance
OWNRS	Onsite wastewater nutrient reduction system
OWTS	Onsite wastewater treatment system
WWTP	Wastewater treatment plant

1.0 Purpose and Scope of Feasibility Study

Monroe County intends to apply for a $3.8M Onsite Decentralized Wastewater System Demonstration grant through the U.S. Environmental Protection Agency. With a 25 percent ($1.27M) local match, the total grant amount for this demonstration project is approximately $5.07M.

This demonstration grant will show that the onsite decentralized wastewater utility concept is the most economical means to operate and manage onsite wastewater systems that will continue to function in the more remote and least developed parts of Monroe County.

The purpose of this feasibility study is to evaluate and establish the scope and cost of all components required to carry out this demonstration project in order to stay within the limits of the total available project budget, and to set forth the additional legal and institutional requirements and actions that must be carried out by the Monroe County Board of County Commissioners (BOCC) to be able to implement this onsite decentralized wastewater system demonstration project. This feasibility study will provide the approximate number and types of systems that can be evaluated, a budget breakdown of the different components required to carry out this demonstration project, a schedule, and a summary of the legal and institutional requirements and actions that must be addressed to implement an onsite decentralized wastewater utility.

2.0 Background

The Monroe County Sanitary Wastewater Master Plan (the Master Plan) shows that the cost to users of onsite systems in the "Cold Spot" areas will be substantially more than the cost to users served by central sewers ($105 to $326 per month for onsite users versus $52 to $148 per month for central sewer users). One of the advantages of a decentralized wastewater utility is that it should be able to reduce the overall costs of both installation and operation and maintenance (O&M) of onsite systems because of economy of scale and the ability to combine several users with one onsite treatment system. The amount of reduction is unknown; one of the purposes of this demonstration project is to determine that amount.

Although a decentralized wastewater utility is expected to be able to reduce costs to the onsite user, it is expected that the cost to the onsite system user will still be substantially more than the cost to users served by central sewers. As a result, some of the more developed "Cold Spot" areas may actually be served by central sewers some day. Hence, only the least developed and most remote "Cold Spot" areas should be considered in this demonstration project.

Four basic requirements for this EPA Onsite Decentralized Wastewater System Demonstration Project grant are:

1) The funds are to be used to cover as much as 75% of the cost of design, construction, monitoring, O&M and administering decentralized onsite systems

2) These funds must be used in areas where the decentralized systems are seen to be a "permanent" solution, i.e. where those systems will not be replaced during the life of that system (roughly 15 years)

3) The establishment of a centralized administrative entity with responsibility for construction, oversight, ongoing maintenance, and financial administration (billing) for these systems should be an essential part of any project

4) Any project funded should be consistent with the Monroe County Sanitary Wastewater Master Plan

The Master Plan refers to onsite systems that are capable of meeting the Monroe County wastewater effluent standards of 10/10/10/1 as Onsite Wastewater Nutrient Reduction Systems (OWNRS). These systems are the same as those that the Department of Health (DOH) regulations refer to as performance based systems.

The onsite systems that are necessary to meet the Monroe County effluent standards and that will be part of this demonstration project are unlike any other onsite wastewater systems in almost any other decentralized wastewater utility. Most other utilities have basically a septic tank and a drain field, a passive onsite system, which is the norm for most other areas. The systems that are necessary in Monroe County are mini advanced wastewater treatment plants that require controlled treatment processes to remove nutrients and other pollutants from the wastewater. These systems will require much more attention than the more common and more passive septic tank and drain field systems in other areas.

In fact, the DOH required frequency of two to four site visits per year, depending on the type of OWNRS, is not expected to be adequate to ensure that the OWNRS will function as designed and intended. Hence the management entity will be required to establish operation / testing requirements.

Increased inspection frequency will obviously increase annual O&M costs even more, but the increased frequency is absolutely necessary if the OWNRS are to function as intended.

One purpose of this demonstration project is to establish a balance between inspection frequency and the ability of the OWNRS to function as designed and intended. The remote monitoring and management systems to be installed and evaluated as part of this demonstration project are expected to reduce the frequency of inspections and the overall operating cost.

To stay within the total budget of this demonstration project, it is expected that approximately 100 residential units will be able to be served by a combination of onsite systems consisting of single OWNRS, shared OWNRS (2, 3, and 4-home), and sewered cluster systems that will be constructed as part of this demonstration project.

In this report, the "utility" is the entity that will be responsible for managing the onsite systems. It could be Monroe County or the FKAA, or a private management entity contracted by either. In the latter, the County or the FKAA would only provide oversight to the management entity.

Initially, Monroe County will be the entity responsible for managing the demonstration project. As more FKAA publicly owned and operated community wastewater systems become operational, and as this demonstration project progresses, the FKAA may ultimately become the management entity. The long-term goal is to have the FKAA become the management entity. Regardless of who manages this demonstration project, the same results and conclusions will be reached.

This feasibility study will address the following:

- Potential demonstration project study sites
- Schedule
- Number of systems to be evaluated
- Program personnel and grant administration
- Remote monitoring and management technologies to be evaluated
- System design, construction, and construction contract administration
- Onsite user monthly service fees
- System O&M
- Budget
- Legal/institutional requirements/actions
- Management concepts

3.0 Basis for Costs

A review of current installed costs of performance based systems, or OWNRS, with contractors installing these systems in the Keys indicates current construction costs are consistent with those estimated in the Master Plan, adjusted for escalation of the Master Plan costs. Therefore, construction cost estimates and O & M cost estimates from the Master Plan, adjusted by 10.5% for escalation as described below, will be used in this report.

The Master Plan costs are based on September 1998 costs (ENR cost index of 5,963); costs in this report are based on September 2002 costs, with an ENR cost index of

6,589. Thus, costs have escalated by 10.5% (6,589/5,963 = 1.105) in the four years since the Master Plan.

Personnel and administrative costs are based on the costs for comparable positions within Monroe County or the FKAA. These costs include all fringe and employment costs.

4.0. Potential Study Sites

One of the requirements of this demonstration grant is that the funds must be used in areas where the decentralized systems are seen to be a "permanent" solution, i.e. where those systems will not be replaced during the life of that system (roughly 15 years). The Master Plan identified areas that would not be served by central wastewater collection and treatment systems but would continue to utilize decentralized wastewater treatment systems (DWTS) for some 1,085 property owners throughout Monroe County. Based on a preliminary review of these DWTS areas and the requirements of this grant, several potential study sites that would meet the objectives of the National Onsite Wastewater Treatment System Demonstration Project in the Keys were identified. Figures 4-1 through 4-6 show the locations of these potential study sites. A brief description of these study sites follows.

4.1 Northeast Part of Summerland Key

There are approximately 8 developed properties linearly distributed along approximately one mile of roadway (Figure 4-1). The nearest proposed central collection and treatment system will be approximately 2,400 feet from the nearest developed property in this potential study site.

4.2 Big/Middle Torch Keys

There are approximately 61 developed properties distributed along approximately 5 miles of roadway; two of these properties have houses under construction. (Figure 4-2). The nearest proposed central collection and treatment system will be approximately 5,000 feet from the nearest developed property in this potential study site. The second nearest developed property is some 14,000 feet from the nearest proposed central collection and treatment system.

4.3 Silver Shores Estates, Ramrod Key

There are approximately 10 developed properties distributed along approximately 1,000 feet of roadway in an area encompassing approximately 8 acres (Figure 4-3). The nearest proposed central collection and treatment system will be approximately 3,000 feet from the nearest developed property in this potential study site.

4.0 DESCRIPTION OF PROJECT FIELD TESTING SITE

A controlled field testing facility has been chosen to meet the objectives of the National Onsite/Decentralized Wastewater Treatment System Demonstration Project in the Florida Keys. A brief description of this testing site is provided in this section.

4.1 Big Pine Key OWNRS Test Facility

Testing of additional nutrient reducing onsite systems is proposed as part of this demonstration project. This testing will utilize the existing OWNRS test facility on Big Pine Key, which was developed previously under EPA funding through the Florida Department of Health (DOH).

The Big Pine Key OWNRS test facility is located at the Big Pine Key Road Prison, (BPKRP), a minimum-security correctional institute which houses non-violent inmates (Figure 4-1).

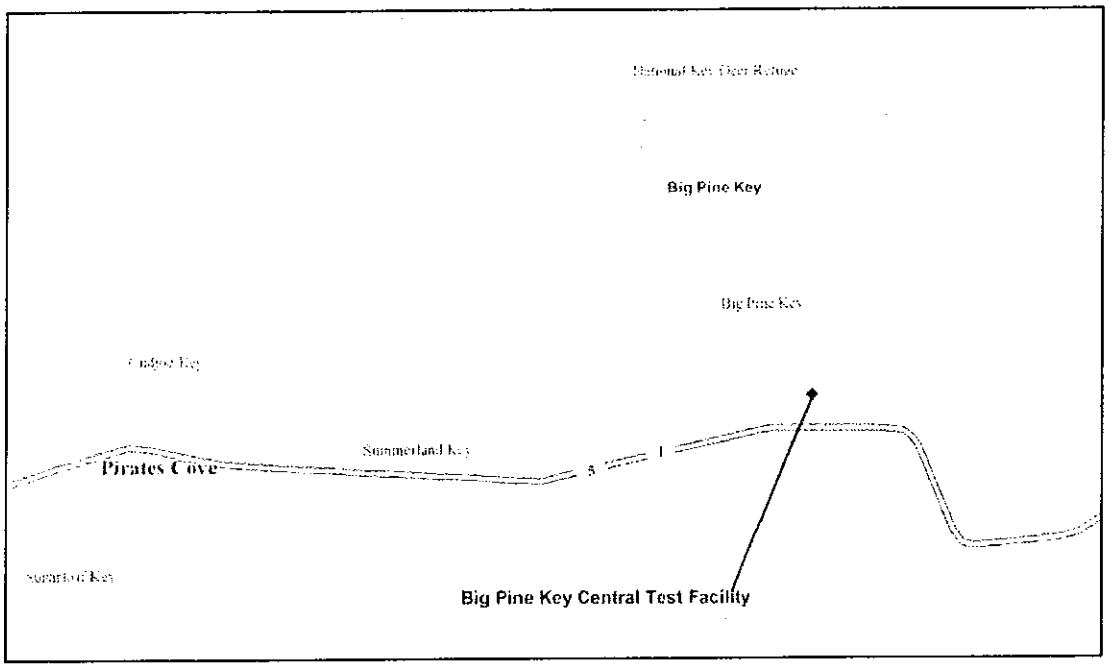


Figure 4-1. Big Pine Key Central Test Facility Location Map.

The prison includes several inmate dormitories, a kitchen, and a laundry facility. BPKRP is served by an 8000 gallon per day (gpd) domestic wastewater treatment plant (WWTP) located on the property.

Wastewater generated by the BPKRP is domestic in nature, and is representative of other residential wastewater flows within the Florida Keys. Raw wastewater from the dormitories, kitchen, and laundry flow to a lift station and is then pumped to the wastewater treatment plant.

The OWNRS test facility is located adjacent to the WWTP and a portion of the raw wastewater flow from the lift station is diverted to the test facility.

The test facility was designed to allow comparative testing of numerous onsite wastewater treatment processes simultaneously, under controlled conditions, with a common wastewater source. Use of a common source eliminates the difficulty of making valid comparisons of technology performance based on a limited number of installations with widely varying wastewater characteristics. The test facility allows accurate monitoring of influent wastewater quality and flow, and the capability for flow-composited effluent sampling to determine treatment performance. In addition to treatment performance, the operation, maintenance, and costs associated with each system can be cost-effectively monitored.

Figure 4-2 provides a schematic of the test facility as currently configured. New treatment systems would be installed, operated, and monitored as part of this demonstration project.

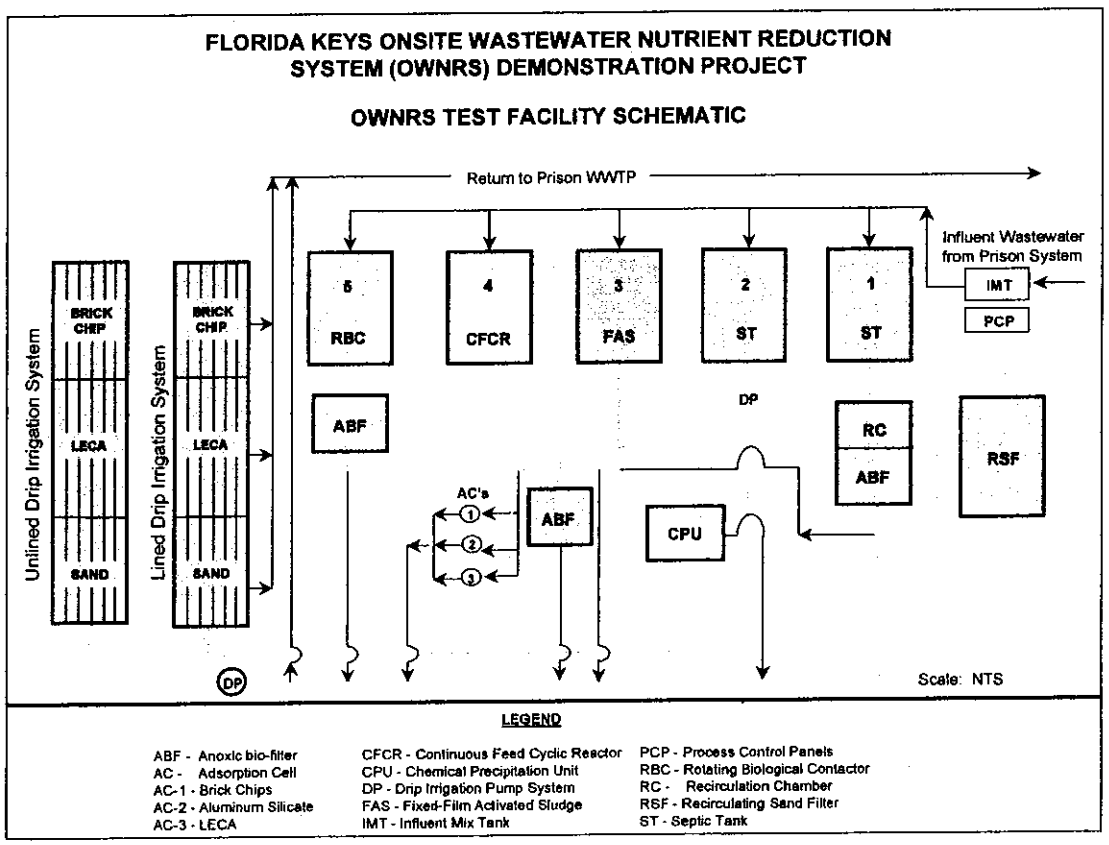


Figure 4-2. OWNRS Test Facility Schematic (Ayres Associates, 1998).

4.4 Pine Heights, Big Pine Key

There are approximately 42 developed properties distributed along approximately 2 miles of roadway in an area encompassing approximately 55 acres (Figure 4-4). The nearest proposed central collection and treatment system will be approximately 4,000 feet from the nearest developed property in this potential study site.

4.5 Pine Key Acres, Big Pine Key

There are approximately 26 developed properties distributed along approximately 3-1/2 miles of roadway in an area encompassing approximately 230 acres (Figure 4-5). The nearest proposed central collection and treatment system will be approximately 1,500 feet from the nearest developed property in this potential study site.

4.6 Long Beach, Big Pine Key

There are approximately 44 developed properties distributed along approximately 2 miles of roadway. The nearest private wastewater treatment plant (WWTP) (at Big Pine Fishing Lodge), although it does not have capacity to accommodate the projected wastewater flows from the Long Beach area, is approximately 6,000 feet from the nearest developed property in this potential study area. The nearest proposed central collection and treatment system will be approximately 10,000 feet from the nearest developed property in this potential study site.

4.7 Final Study Sites Selection Criteria

One of the first tasks of this demonstration project will be to select the final study sites in order to have a total of approximately 100 properties available for this demonstration project. Study sites should be selected based on the following criteria:

- Areas with the least density and most removed from areas identified for central wastewater collection and treatment
- Developed properties that would provide the opportunity to install and evaluate the range of onsite systems—single OWNRS, shared OWNRS (2, 3, and 4 houses), and sewered cluster systems
- Areas with the least existing OWNRS
- Study sites relatively close together to economize on travel time between study sites and administrative costs
- Receptiveness of the participants in a study site to participate in this demonstration project

5. Schedule

Based on the requirements of the demonstration grant and the scope of work outlined in the demonstration grant work plan (Appendix A), which will be submitted as part of the grant application, the schedule shown in Figure 5-1 has been prepared. The schedule is presented in terms of number of months, and not specific dates, as the actual date when the demonstration project will begin is uncertain. Consequently, the first year of the demonstration project likely will not coincide with either a calendar year or a fiscal year.

This schedule shows a total duration of approximately four years, and allows approximately one and one half years for the monitoring and evaluation of this demonstration program. This schedule should provide an adequate period of time to establish a functional utility, construct and operate the variety of onsite systems, monitor utility operations, and make adjustments to the operating utility to improve operability and efficiency.

This schedule provides a good balance between a longer duration demonstration project, which increases administrative costs and lessens other important demonstration project budgets, and a shorter duration project that does not provide sufficient time to understand onsite utility operations to make adjustments to have an efficient functioning utility.

As this demonstration project is implemented, this schedule must be monitored continuously, and adjustments made to the overall program, if necessary, should the schedule extend beyond this estimated four year time period, so that the demonstration project can still be completed within the $5.07 million budget.

6.0 Number of Systems to be Evaluated

Based on the projected schedule in Section 5.0, projected construction and operation and maintenance (O & M) costs of the different types of anticipated onsite systems, and the cost of other components of this demonstration project, it is estimated that approximately 100 residential units will have the opportunity to participate in this demonstration project. No one potential study site contains this number of residential units, so two or more study sites will be part of this demonstration project.

The final number of residential units to participate may need to be adjusted as this project progresses, and the budget is further refined, if actual costs deviate from those projected, or if the project duration extends much beyond that projected in Section 5.0.

Based on the criteria set forth in Section 4.0 and the information available at this time, the following study sites appear to best meet the criteria for this demonstration project:

- Big / Middle Torch Keys (approximately 58 residential units)
- Pine Heights, Big Pine Key (approximately 42 residential units)

For purposes of this feasibility study, these approximately 103 residential properties are therefore assumed to be the properties that will participate in this demonstration project.

7.0 Program Personnel and Utility / Grant Administration

Based on the grant requirements, the demonstration project work plan scope of work (Appendix A), and the projected project schedule, program personnel and utility and grant administration costs were estimated. Table 7-1 shows the estimated personnel and annual budget requirements for this demonstration project, once the project is in full operation.

As the program is being implemented, in the first year of the demonstration project, and likewise as the demonstration program is being completed in the last year, all personnel will not be required, and consequently the demonstration program will not incur as many costs in these two years, depending on how closely the demonstration program schedule coincides with the utility fiscal year. At the completion of this demonstration project, however, most of the personnel and administrative costs must continue, as the onsite wastewater utility transforms from the demonstration project to actual full onsite utility operations. This will be a significant challenge to the utility as user costs will increase substantially.

Table 7-1
Personnel Requirements and Estimated Annual Budget for Demonstration Project and Grant Administration during Full Operation [1]

Staff or Function	Annual Cost
Decentralized Utility Director/Grant Administrator [2]	$ 120,000
Onsite Utility Engineer [2]	$ 100,000
Clerical/Administrative [2]	$ 60,000
I&C Technician (part time – 30%)[2]	$ 20,000
General Utility Engineering/Administrative Support (legal, finance, accounting, auditing, purchasing – 8% of above) [2]	$ 24,000
Office Space, including Utilities	$ 20,000
Office Supplies	$ 5,000
Vehicles (2 + part time I&C Tech 500 mile/week @ $0.35/mile)	$ 9,100
Customer Service & Billings (103 accounts @ $40/acc./year)	$ 4,120
Total Estimated Annual Administrative and Monitoring Costs	$ 362,220

(1) Costs are mid program costs, escalated by 4% per year

(2) Includes all fringe and employment costs

Table 7-2 summarizes anticipated personnel requirements and administrative costs for each year of the demonstration program. As shown, the total estimated Administration and Monitoring Demonstration Grant budget is $1,356,600.

If the duration of this demonstration program extends beyond the 4-year duration anticipated in this report (Figure 5-1), adjustments to components of the program must be made in order that the greater administrative and monitoring costs associated with a longer duration project will not result in a total project budget being greater than the total available $5.07 million budget.

8.0 Remote Monitoring and Management Technologies

Inadequate operation and maintenance of OWTS by homeowners have led to system failures and the resulting perception that decentralized wastewater systems are less reliable than centralized facilities. However, centralized management of OWTS can provide proper operation and maintenance. Centralized management is even more important when advanced technologies such as OWNRS are required because the routine O&M of hundreds of individual systems becomes time consuming and increases O&M costs substantially. Recent developments in remote monitoring and controls provide integrated telemetry, data acquisition, and optimized control in relatively inexpensive pre-packaged control systems for the DWTS industry.

For example, OWNRS treatment systems generally will continue to function fairly well as long as electric motors that run blowers and pumps continue to operate. However, should critical electric motors fail or be turned off intentionally (to save electric costs), it is unlikely that the OWNRS systems will meet Monroe County treatment standards. A simple monitoring device at each onsite treatment system and at the central onsite utility command center could indicate whether all electrical components are functioning as intended. If not, a technician could be dispatched to the problem location on an as needed basis, rather than to have someone check on a fairly frequent basis whether all electrical components are functioning at all onsite systems

This phase of the project will select and evaluate technologies, methods and equipment for the remote monitoring and management of DWTS in the Keys. Results of this evaluation will determine the cost effectiveness of remote monitoring and management and will establish the degree of remote monitoring and management that should be implemented for the onsite wastewater utility. This will be accomplished through the tasks outlined in the Work Plan (See Appendix A).

9.0 System Design, Construction, and Construction Contract Administration

As noted in Section 3.0, current construction costs for OWNRS are consistent with construction costs in the Master Plan, adjusted for cost escalation. Current (September 2002) estimated construction costs for the various types of onsite systems are summarized in Table 9-1.

Table 9-1
Summary of Current (September 2002) Estimated Construction Costs for Various OWNRS Systems

Onsite System Type	Master Plan Cost ($ / Unit)	Current September 2002 Cost ($ / Unit) [1]
Single OWNRS System	15,000	16,600
2-Unit Shared System	9,500	10,500
3-Unit Shared System	10,000	11,000
4-Unit Shared System	8,200	9,100
5-Home Sewered Cluster System	25,200	27,800
7-Home Sewered Cluster System [2]	23,000	25,400
10-Home Sewered Cluster System	20,000	22,100
40 to 50-Home Sewered Cluster System	24,000	26,000

[1] September 1998 ENR = 5,963. September 2002 ENR = 6,589. 6,589 / 5,963 = 1.105.

[2] Prorated between 5-Home Sewered Cluster System and 10-Home Sewered Cluster System

The two study sites identified in Section 6.0, Big/ Middle Torch Keys and Pine Heights, Big Pine Key, were evaluated to determine the appropriate types of onsite systems that should be installed. Table 9-2 provides a summary of these systems as well as the estimated construction, design, and construction contract administration costs, termed total project costs.

It should be noted that both study sites provide the opportunity to install sewered cluster systems, but only one cluster system is proposed for study in this demonstration project. This is because the Master Plan shows that sewered cluster systems are more expensive than shared onsite systems (Total monthly cost of $178 or greater per residential unit for sewered cluster systems of five to ten residential units or greater versus a total monthly cost of $105 to $133 per residential unit for a two, three, or four-home shared system). Consequently, sewered cluster systems would not normally be installed, but because this is a demonstration project, all different types of onsite systems should be constructed and evaluated. Thus, a five-unit sewered cluster system is proposed for Pine Heights. For comparison of the 5-unit sewered cluster system at Pine Heights, one two-unit shared system and one three-unit shared system could be installed for $54,000, a cost savings of about $85,000 over the 5-unit sewered cluster system. The Pine Heights five-unit sewered cluster system was selected over the Big/Middle Torch seven-unit sewered cluster system because the five-unit system is less expensive to construct.

Total construction cost and design and construction contract administration costs (total project costs) to install systems in the two study sites are estimated to be $1,936,000.

Table 9-2
Summary of Proposed Onsite Systems for Keys Demonstration Project and Construction and Project Costs

Pine Heights, Big Pine Key

5-Unit Sewered Cluster System	= 5 Units	@ $27,800/Unit =	$ 139,000	
6, 2-Unit Shared Systems	=12 Units	@ $10,500/Unit =	$ 126,000	
25 Single Systems	= 25 Units	@ $16,600/Unit =	$ 415,000	
Total Estimated Construction Cost, Pine Heights			**$ 680,000**	
42 Total Units- $16,200/Unit				
Design & Construction Contract Administration Costs		@ $27% =	$184,000	
Total Estimated Project Costs, Pine Heights				**$ 864,000**
42 Total Units- $20,600/Unit				

Big / Middle Torch Keys

1, 4-Unit Shared System=	4 Units	@ $ 9,100/Unit =	$ 36,400	
1, 3-Unit Shared System =	3 Units	@ $11,000/Unit =	$ 33,000	
10, 2-Unit Shared Systems =	20 Units	@ $10,500/Unit =	$ 210,000	
34 Single Systems	= 34 Units	@ $16,600/Unit =	$ 564,4200	
Total Estimated Construction Cost, Big / Middle Torch			**$ 843,800**	
61 Total Units-$13,800/Unit				
Design & Construction Contract Administration Costs		@ $27% =	$ 228,200	
Total Project Costs, Big / Middle Torch				**$1,072,000**
61 Total Units-$17,600/Unit				
TOTAL CONSTRUCTION COST, DEMONSTRATION PROJECT			**$1,523,800**	
TOTAL PROJECT COSTS , DEMONSTRATION PROJECT				**$1,936,000**

10.0 User Monthly Service Fee

Under this demonstration program, all construction costs will be funded by the demonstration program budget. Likewise, all the annual O & M costs could be funded by the demonstration program budget. However, it is recommended that a monthly user fee of $50 be charged to each user. This fee is very nominal when compared to the actual monthly O & M costs of over $200. Thus, the demonstration program budget is funding the majority of the O & M costs. This nominal monthly user fee is recommended for several reasons:

- Although nominal, this fee still contributes to the overall demonstration program budget and thus allows a few additional users to participate.
- This fee gets the users accustomed to paying a user fee for services provided.

11.0 System Operation and Maintenance

Current (September 2002) O & M prices for the various types of onsite systems are summarized in Table 11-1. Renewal and replacement (R & R), annual or semi-annual operating permit renewals, and solids disposal are included in the annual O & M costs.

Table 11-1
Summary of Current (September 2002) Annual O & M Costs for Various OWNRS Systems

Onsite System Type	Master Plan Cost ($ / Unit)	Current September 2002 Costs ($ / Unit) [1]
Single OWNRS System	2,815	3,110
2-Unit Shared System	1,582	1,750
3-Unit Shared System	1,599	1,770
4-Unit Shared System	1,265	1,400
5-Home Sewered Cluster System	2,855	3,150
7-Home Sewered Cluster System [2]	2,660	2,940
10-Home Sewered Cluster System	2,370	2,620
40 to 50-Home Sewered Cluster System	2.400	2,600

[1] September 1998 ENR = 5,963. September 2002 ENR = 6,589. 6,589 / 5,963 = 1.105.

[2] Prorated between 5-Home Sewered Cluster System and 10-Home Sewered Cluster System

Annual O & M costs once all facilities have been constructed and are operational are shown in Table 11-2 and are estimated to be $266,150. Operation and maintenance will begin in Year 2 (see Figure 5-1) as new systems come on line; all systems are anticipated to be on line by the end of Year 2. It is estimated that about one-half of

the annual O & M cost will be required during Year 2, with full annual O & M costs during Years 3 and 4. Thus, the total Q & M costs during the duration of the demonstration project are estimated to be $665,000.

Table 11-2
Estimated Annual O & M Costs for Demonstration Project Participating Residential Units

Pine Heights, Big Pine Key				
5-Unit Sewered Cluster System	= 5 Units	@ $3,150/Unit =	$ 15,750	
6, 2-Unit Shared Systems	= 12 Units	@ $1,750/Unit =	$ 21,000	
25 Single Systems	= 25 Units	@ $3,110/Unit =	$ 77,750	
Total Annual O & M Cost, Pine Heights				**$ 114,500**
42 Total Units-$227/Unit/Mo				
Big / Middle Torch Keys				
1, 4-Unit Shared System=	4 Units	@ $1,400/Unit =	$ 5,600	
1, 3-Unit Shared System=	3 Units	@ $1,770/Unit =	$ 5,310	
10, 2-Unit Shared Systems =	20 Units	@ $1,750/Unit =	$ 35,000	
34 Single Systems	= 34 Units	@ $3,110/Unit =	$ 105,740	
Total Annual O & M Cost, Big / Middle Torch Key				**$ 151,650**
61 Total Units-$207/Unit/Mo				
TOTAL ANNUAL O & M COSTS, DEMONSTRATION PROJECT				**$ 266,150**

12.0 Demonstration Project Budget

The analysis conducted for this feasibility study indicates that approximately 103 properties can be served by the combination of onsite systems that will be installed and evaluated as part of this demonstration project. As shown in Section 5.0, the duration of this project is expected to take approximately four years to complete. Based on the number of properties to be included, the duration of this project, and the scope of this demonstration project, the total estimated project budget, as shown in Table 12-1, is $5.07M, which is equal to the EPA grant plus the 25 percent local share.

Table 12-1. Florida Keys Decentralized Onsite Wastewater Treatment System Demonstration Project Budget

Administration and Monitoring of Utility and Demonstration Grant	$1,347,000
Remote Monitoring and Management Technologies Evaluation	$350,000
Design, Construction, and Construction Contract Administration	$1,936,000
Sampling and Monitoring	$200,000
Education, Training and Public Outreach	$160,000
Operation and Maintenance (O&M)	$665,000
Billings (Part of Table 7-2)	$10,000
Feasibility Study	$50,000
Contingency	$352,000
TOTAL BUDGET	**$5,070,000**

13.0 Management Concepts

The goal of the decentralized wastewater utility is to reduce overall construction and operating costs, and thus reduce the monthly cost to the onsite user. The goal is also to maintain or improve reliable performance of all onsite systems so that all systems consistently meet Monroe County treatment standards.

The ability of the utility to enter private property for construction and operation and maintenance of all facilities and to combine several adjacent residences into one treatment system certainly will be a huge asset to reducing overall costs. The utility cannot function without the legal ability to enter private property.

Standards for design, construction, and operation and maintenance under one decentralized wastewater utility will also provide economy of scale, which will reduce costs.

Competition among the qualified OWNRS manufacturers and suppliers and installers should also function to keep user costs in line. To this end, the design and

the contract documents for the construction and the operation and maintenance of the OWNRS must promote competition. The best approaches to accomplish this must be addressed in the early stages of the development of these documents.

This demonstration project will determine the reduction in costs for installation and for operation and maintenance that can be expected as a result of the onsite wastewater utility concept. However, costs will continue to be higher for the onsite user than for the central sewer user. As this demonstration project concludes, the onsite utility must initiate a public outreach program to advise the participants of this program and future onsite users who will upgrade their systems that user fees will increase because the demonstration grant will no longer be available to subsidize operation and maintenance.

Throughout this report, monitoring of the budget and schedule with respect to that outlined in this report has been emphasized so that the demonstration project can be completed within the allotted budget. A good milestone to compare actual progress and budget with that contemplated is at the time of construction contract and O&M contract awards. Almost all of the uncertainties in terms of time and cost will have been know by this time. If the time to reach these milestones is longer or shorter, or if construction costs or O&M costs came in higher or lower than anticipated, this is an ideal time to make adjustments to the budget. The number of systems to be installed and maintained can also be adjusted prior to award. Of course, this provision must be addressed in the original contract documents.

14.0 Legal/Institutional Requirements and Policies

For a decentralized wastewater utility to function, certain legal and institutional requirements and policies are necessary. These include:

1. Mandatory connection (participation) ordinance for onsite systems must be passed by the BOCC. Initially, this ordinance would apply only to the study sites that are part of this demonstration project. However, as the onsite wastewater utility expands into other areas, the ordinance must be amended to include these other areas as well.
2. Creation of non ad-valorem Municipal Service Utility Assessment Districts (MSUAD) by the BOCC. If the decentralized wastewater utility is an entity other than the county, an interlocal agreement between the utility and the BOCC is necessary for the County to provide the revenues collected in the MSUAD to the

utility. Like the Municipal Service Taxing Units (MSTU) that were recently approved by the BOCC on behalf of the FKAA and the Key Largo Sewer Board (KLSB), certain time restrictions and specific legal advertising requirements, etc. apply to the non ad-valorem assessment districts process. All of these requirements should be initiated in calendar year 2003 and finalized by the end of calendar year 2003. Like the mandatory connection (participation) ordinance, this ordinance would apply initially only to the study sites that are part of this demonstration project. However, as the onsite wastewater utility expands into other areas, the MSUD ordinance must be amended to include these other areas as well.

3. Permanent and temporary easements and legal access to private property for construction and maintenance and repairs of the collection and treatment systems. The mandatory connection (participation) ordinance may include the legal provisions to allow legal access to private property for construction, and maintenance and repairs of all facilities.

4. Ownership of the collection and treatment systems, permittees of the systems, and the entity responsible for electric, chemical, operation and maintenance, and repair or replacement parts and costs. If ownership of the facilities is by the utility, the legality of such ownership on private property must be addressed. For the decentralized onsite utility to function properly, this feasibility study considers that the utility will own all collection and treatment systems; will be the permittee for all systems; and will be responsible for all electric, chemical, operation and maintenance, repair and replacement costs, and all administrative costs, identical to a centralized wastewater collection and treatment system utility.

5. The legal ability of the utility to determine the property on which a shared system should be located for two or more users.

6. Policy regarding how property owners who have already installed OWNRS will be treated monetarily.

7. Clarification or revision to sections of DOH Chapter 64E-6 that could impede the use of shared or cluster systems, specifically:

- The limit of the equivalent of 2,500 gpd per acre of effluent that can be applied
- 64E-6.012 (Table IV) that requires a minimum treatment capacity of 400 gpd for a I or 2 bedroom residence and 500 gpd treatment capacity for a 3 bedroom residence. The average water consumption for residences throughout Monroe County is only about 170 gpd.

15.0 Summary and Conclusions

Monroe County intends to apply for a $3.8M Onsite Decentralized Wastewater System Demonstration grant through the U.S. Environmental Protection Agency. With a 25 percent ($1.27M) local match, the total grant amount for this demonstration project is approximately $5.07M. This demonstration grant will show that the onsite decentralized wastewater utility concept is the most economical means to operate and manage onsite systems that will continue function in the more remote and least developed parts of Monroe County.

This feasibility study will evaluate and establish the scope and cost of all components required to carry out this demonstration project in order to stay within the limits of the total available project budget, and will set forth the additional legal and institutional requirements and actions that must be carried out by the Monroe County Board of County Commissioners to be able to implement this onsite decentralized wastewater system demonstration project.

Four basic requirements of this EPA Onsite Decentralized Wastewater System Demonstration Project grant are:

1) The funds are to be used to cover as much as 75% of the cost of design, construction, monitoring, O&M and administering decentralized onsite systems

2) These funds must be used in areas where the decentralized systems are seen to be a "permanent" solution, i.e. where those systems will not be replaced during the life of that system (roughly 15 years)

3) The establishment of a centralized administrative entity with responsibility for construction, oversight, ongoing maintenance, and financial administration (billing) for these systems should be an essential part of any project

4) Any project funded should be consistent with the Monroe County Sanitary Wastewater Master Plan

Six potential study sites with approximately 190 developed properties have been identified. This analysis has been determined that approximately 100 developed properties can be included in the demonstration project. Thus, one of the first tasks of this demonstration project will be to select the final study sites in order to have the approximately 100 properties. Study sites should be selected based on the following criteria:

- Areas with the least density and most removed from areas identified for central wastewater collection and treatment

- Developed properties that would provide the opportunity to install and evaluate the range of onsite systems—single OWNRS, shared OWNRS (2, 3, and 4 houses), and sewered cluster systems
- Areas with the least existing OWNRS
- Study sites relatively close together to economize on travel time between study sites and administrative costs
- Receptiveness of the participants in a study site to participate in this demonstration project

Based on the above criteria, Big/Middle Torch Keys and Pine Heights, Big Pine Key, with a total of 103 developed properties, have been identified as the study sites for purposes of this feasibility study evaluation so budgets can be fully developed.

Remote monitoring and management technologies will also be evaluated as one phase of this demonstration project because remote monitoring and management concepts are expected to reduce overall operation and maintenance costs. This phase of the project will select and evaluate technologies, methods and equipment for the remote monitoring and management of decentralized wastewater treatment systems. Results of this evaluation will determine the cost effectiveness of remote monitoring and management and will establish the degree of remote monitoring and management that should be implemented for the onsite wastewater utility.

It is anticipated that the demonstration project will require four years to fully plan and implement the utility, construct and operate and maintain the onsite systems, evaluate the results of the demonstration project, and prepare and submit a final report to EPA. The anticipated schedule is shown in Figure 5-1.

Based on the approximately 103 developed properties to be included, the four year duration, and the scope of this demonstration project as outlined in Appendix A, it is anticipated that the demonstration project can be completed within the $5.07M budget ($3.8M EPA grant and 25% local match). Key components of this $5.07M budget during the anticipated four year duration of this demonstration project are:

- Administration and monitoring of utility and demonstration grant - $1,347,000
- Remote monitoring and management technologies evaluation - $350,000
- Design, construction, and construction contract administration - $1,936,000
- Sampling and monitoring - $200,000
- Education, training, and public outreach - $160,000
- Operation and maintenance - $665,000

- Billings - $10,000
- Feasibility study - $50,000
- Contingency - $352,000

The management concepts that will be evaluated and established during this demonstration project to reduce costs and to improve reliable performance will include:

- Combine several adjacent residences into one treatment system
- Standards for design and construction of onsite systems
- Standards for operation and maintenance of onsite systems
- Develop competition among qualified OWNRS manufacturers, suppliers, and installers

Monitoring of the budget and schedule during the duration of the demonstration project is of utmost importance so that the entire demonstration project can be completed within the allocated budget.

For a decentralized wastewater utility to function, certain legal and institutional requirements and policies are necessary. These include:

1. Mandatory connection (participation) ordinance for onsite systems must be passed by the BOCC. Initially, this ordinance would apply only to the study sites that are part of this demonstration project. However, as the onsite wastewater utility expands into other areas, the ordinance must be amended to include these other areas as well.
2. Creation of Municipal Service Utility Districts (MSUD) by the BOCC. If the decentralized wastewater utility is an entity other than the county, an interlocal agreement between the utility and the BOCC is necessary for the County to provide the revenues collected in the MSUD to the utility. Like the mandatory connection (participation) ordinance, this ordinance would apply initially only to the study sites that are part of this demonstration project. However, as the onsite wastewater utility expands into other areas, the MSUD ordinance must be amended to include these other areas as well.

3. Permanent and temporary easements and legal access to private property for construction and maintenance and repairs of the collection and treatment systems. The mandatory connection (participation) ordinance may include the legal provisions to allow legal access to private property for construction, and maintenance and repairs of all facilities.

4. Ownership of the collection and treatment systems, permittees of the systems, and the entity responsible for electric, chemical, operation and maintenance, and repair or replacement parts and costs. If ownership of the facilities is by the utility, the legality of such ownership on private property must be addressed. For the decentralized onsite utility to function properly, this feasibility study considers that the utility will own all collection and treatment systems; will be the permittee for all systems; and will be responsible for all electric, chemical, operation and maintenance, repair and replacement costs, and all administrative costs, identical to a centralized wastewater collection and treatment system utility.

5. The legal ability of the utility to determine the property on which a shared system should be located for two or more users.

6. Policy regarding how property owners who have already installed OWNRS will be treated monetarily.

7. Clarification or revision to sections of DOH Chapter 64E-6, specifically

- The limit of the equivalent of 2,500 gpd per acre of effluent that can be applied
- 64E-6.012 (Table IV) that requires a minimum treatment capacity of 400 gpd for a I or 2 bedroom residence and 500 gpd treatment capacity for a 3 bedroom residence. The average water consumption for residences throughout Monroe County is only about 170 gpd.

Monroe County
1100 Simonton Street
Key West, Florida 33040

Wastewater Engineering Services
Request for Statements of Qualifications
Legal Notice

Monroe County, pursuant to Florida Statutes, Chapter 287.055, Consultants Competitive Negotiations Act, is seeking Professional Engineering Consulting firms to enter into a Contract for Wastewater Utility Engineering Services to provide expertise in presenting grant package to the U.S. Environmental Protection Agency (EPA) for the development and implementation of an on-site decentralized wastewater system / centralized utility demonstration project.

A copy of the Qualifications Package may be obtained from Ms. Lisa Cherry, Monroe County Purchasing Department, 1100 Simonton Street, Key West, Fl., 33040. (305)-292-4466

Firms or individuals desiring to provide professional services for this project shall submit six (6) copies of a Letter of Interest and completed Qualifications Package addressed to:

Ms. Lisa Cherry
Purchasing Department
Monroe County
1100 Simonton Street — Phone: 305-292-4466
Key West, Florida 33040-1239 — Fax: 305-292-4515

All Qualifications Packages shall be sealed in envelopes plainly marked on the outside:

"Project Name: "EPA Decentralize Wastewater Utility Demonstration Project"

Qualifications Packages will be received until 5:00 p.m., local time, on Monday, the 31st day of March, 2003.

Review of the Qualifications Packages will be performed by a selection committee as determined by the Director of Marine Resources. The areas of consideration for determining the best firm or individual qualified include, but are not limited to the following:

- Qualifications and Expertise of Firm with Similar Work

- Qualifications and Expertise of Assigned Staff with Similar Projects
- Understanding of Scope of Work
- Quality, Depth & Scope of Proposed Project Approach
- Past Performance History
- References
- Location Considerations
- Prior Work History with Monroe County, if any

Only those firms or individuals submitting letters of interest and completed qualifications packages which best meet the needs of the Florida Keys Aqueduct Authority will be considered for the requested services, regardless of past contracts with the Florida Keys Aqueduct Authority.

Additional information may be obtained by contacting George Garrett, Director of Marine Resources, 305-289-2507.

Request for Qualifications

"EPA Decentralize Wastewater Utility Demonstration Project"

May 2003

Qualifications Package

Issued by:

Department of Marine Resources

EPA Decentralize Wastewater Utility Demonstration Project

Monroe County
Request for Statements of Qualifications
"EPA Decentralize Wastewater Utility Demonstration Project"

Table of Contents

PART I GENERAL INFORMATION

A. Purpose

Monroe County desires to retain a professional engineering consultant(s) to provide the scope of services described below. Selection of the consulting firm(s) or individual(s) will be in accordance with Florida Statute 287.055. This Qualifications Package provides guidelines for the submission of letters of interest and qualifications information in response to this RFQ.

B. Scope of Services

Experience to include:

- Use and or development of On-site Wastewater Nutrient Reduction Systems (OWNRS);
- Testing of new OWNRS technologies;
- Installation and management of on-site and clustered OWNRS;
- Operation and Maintenance of (O &M) on-site and clustered OWNRS;
- Use of telemetry technologies in the management, maintenance, and monitoring of wastewater systems;
- Development and Implementation of Decentralized Utility management; and
- General engineering services to include surveying, aerial photography, engineering design and permitting for wastewater collection, treatment, and disposal.

This scope of services may be expanded at the discretion of Monroe County to include other wastewater related engineering consulting assignments related to the development of the On-site Decentralized Wastewater Utility Project.

C. Requirements of Consultants

Consultants interested in performing these services must exhibit considerable relevant experience with this type of work, and should emphasize both the experience and capability of particular personnel who will actually perform the work. Consultants should indicate any sub-consultants proposed to be utilized for the project.

Proposers, both corporate and individual, must be fully licensed for the type of work to be performed in the State of Florida at the time of RFQ receipt. The proposal of any proposer that is not fully licensed and certified shall be rejected.

Consultants shall carry and provide Monroe County proof of General Liability, Professional Liability, and Workers Compensation Insurance.

PART II PROPOSAL DUE DATE

Sealed proposals in six (6) complete copies must be received at the Monroe County Purchasing Department no later than 5:00 p.m., local time, on Tuesday, the 1st day of July, 2003.

Firms or individuals desiring to provide professional services for this project shall submit six (6) copies of a Letter of Interest and completed Qualifications Package addressed to:
EPA Decentralize Wastewater Utility Demonstration Project

Ms. Lisa Cherry
Purchasing Department
Monroe County
1100 Simonton Street — Phone: 305-292-4466
Key West, Florida 33040 — Fax: 305-292-4515

All Qualifications Packages shall be sealed in envelopes plainly marked on the outside:

"Project Name: EPA Decentralize Wastewater Utility Demonstration Project - Qualifications Package"

Proposals received by Monroe County after the time specified for receipt will not be considered. Proposers shall assume full responsibility for timely delivery at the location designated for receipt of proposals.

PART III SUBMISSION OF PROPOSAL

A. Incurred Expenses

Monroe County is not responsible for any expenses which proposers may incur preparing and submitting letters of interest and qualifications packages called for in this Request for Qualifications.

B. Interviews

Monroe County reserves the right to conduct personal interviews or required presentations on all proposers prior to selection. Monroe County will not be liable for any costs incurred by the proposer in connection with such interviews/presentations (i.e. travel, accommodations, etc.).

C. Proposal Acknowledgement

By submitting a qualifications package, the proposer certifies that he/she has fully read and understands the qualifications instructions and has full knowledge of the scope, nature, and quality of work to be performed.

D. Request for Additional Information

The proposer shall furnish such additional information as Monroe County may reasonably require. This includes information that indicates financial resources as well as ability to provide the services. Monroe County reserves the right to make investigations of the qualifications of the proposer as it deems appropriate.

E. Signature Requirements

Proposals must be signed by duly authorized official(s) of the proposing firm. Joint ventures or teams submitting proposals, although permitted and encouraged, will not be considered

responsive unless it is established that all contractual responsibility rests solely with one firm or legal entity which shall not be a subsidiary or affiliate with limited resources. Each proposal shall indicate the entity responsible for execution on behalf of the proposal team.

F. Acceptance/Rejection/Modifications to Proposals

Monroe County reserves the right to negotiate modifications to proposals that it deems acceptable, reject any and all proposals, and to waive minor irregularities in the evaluation process.

PART IV INFORMATION REQUIRED OF PROPOSER – QUALIFICATION REQUIREMENTS

In order to ensure a uniform review process and to obtain the maximum degree of comparability, it is required that the qualifications packages be organized in the manner specified. The proposals should be assembled in the order listed below and utilize the headings given.

The qualifications package shall be bound no larger than a 2-inch three-ring binder with tabs separating the sections noted below. **Proposals submitted in notebooks larger than 2-inch or in any other type of binding will be considered non responsive and will not be considered for evaluation.**

A. Title Page

B. Table of Contents

C. Letter of Interest

Letter of Interest is limited to two pages and should include the name of the person(s) who will be authorized to make representations for the proposer, their title(s), and telephone number(s).

D. Section 1 – Consultant's Team

This section should identify the prime consultant, subconsultants, project staffing plan, and resumes. An organization chart of the firm should be included that identifies those individuals that will be most directly involved with MONROE COUNTY projects. Identify the Project Manager that will be responsible for day-to-day communication and coordination with Monroe County.

E. Section 2 – Firm Experience

The proposer should present recent (within the last 5 years), relative firm experience for the prime and subconsultants that is most similar to the requested scope of services. Specifically include information on the following:

1. Use and or development of On-site Wastewater Nutrient Reduction Systems (OWNRS);
2. Testing of new OWNRS technologies;
3. Installation and management of on-site and clustered OWNRS;
4. Operation and Maintenance of (O &M) on-site and clustered OWNRS;
5. Use of telemetry technologies in the management, maintenance, and monitoring of wastewater systems;
6. Development and Implementation of Decentralized Utility management; and
7. General engineering services to include surveying, aerial photography, engineering design and permitting for wastewater collection, treatment, and disposal systems.

F. Section 3 – Approach to Scope of Services

This section should include a statement as to the project understanding, planned project approach and tentative time frame of performance.

G. Section 4 – Office Location

Descriptions of primary project office location, address, and phone numbers should include the prime consultant and all subconsultants.

H. Section 5 – References

A list of client references should include name, address, telephone number, and contact person.

I. Section 6 – Qualification Forms

The proposer should complete the Qualification Forms provided in Attachment A. The forms can be copied for typed information or reproduced in word processing format. Forms may be submitted in duplicate, as needed, to present all relevant information.

J. Section 7 – Standard Forms 254 and 255

Attach one (1) completed set of forms for prime consultant and each sub-consultant listed.

K. Section 8 – Other Information

This section should include Proof of Insurance, Statement on Public Entity Crimes, applicable business and professional licenses and other information the proposer considers pertinent for consideration.

PART V PROPOSAL EVALUATION AND REVIEW PROCEDURE

Review of the Qualifications Packages will be performed by a selection committee as determined by the Director of Marine Resources. The areas of consideration for determining the best firm or individual qualified for the project include, but are not limited to, the following:

- Qualifications and Expertise of Firm with Similar Work
- Qualifications and Expertise of Assigned Staff with Similar Projects
- Understanding of Scope of Work
- Quality, Depth & Scope of Proposed Project Approach
- Past Performance History
- References
- Location Considerations
- Prior Work History with Monroe County, if any.

The Monroe County selection committee will evaluate the submittals and create a shortlist of at least three prime consultants, unless less than three Statements are received. The short-listed firms may then be invited to make presentations to the Monroe County Board of Commissioners at a future date. The presentations provide an opportunity for the proposer to clarify the qualifications package to Monroe County. The oral presentation will be incorporated into the final ranking of the short listed firms' overall evaluation. After deliberation, the Monroe County Board of Commissioners will make a final selection of the most qualified firm. A recommendation to begin negotiations with the selected firm will be made by the Selection Committee and approved by the Monroe County Board of Commissioners.

Selection is contingent upon the negotiation of a mutually acceptable contract with the successful proposer.

PART VI QUESTIONS REGARDING PROPOSAL PROCESS

Inquiries regarding this RFQ should be directed to:

Mr. George Garrett
Director of Marine Resources
Monroe County
2798 Overseas Highway
Suite 420
Key West, Florida 33040

Phone: 305-289-2507
Fax: 305-289-2536
E-Mail: garrett-george@monroecounty-fl.com

Written requests for clarification will be received until seven (7) days prior to the submittal date. Interested proposers may conduct self-guided site inspections prior to submitting a proposal. It is recommended that all shortlisted firms make a site inspection prior to presentations to the Monroe County Board of Commissioners.

Attachment A
Qualification Forms

Monroe County
Request for Qualifications
"Big Coppitt Wastewater Engineering Services"

A. GENERAL INFORMATION

1. Submitting Firm Name:_____
2. Type of Firm: Corporation_____ Individual_____ Other_____
3. If Corporation, complete the following:
   a. Date Incorporated:_____
   b. State Incorporated:_____
   c. Date Authorized in Florida:_____
   d. President(s) Name and Office Phone Numbers (If outside of Florida, Regional Vice Presidents):_____
4. If Partnership, complete the following:
   a. Date Organized:_____
   b. Type: General_____ Limited_____
   c. Name of Partners:_____
      _____
5. Secretary of State's Charter Number (attach copy):_____
6. Florida State Board of Professional Engineering Business Registration Number:
   _____ Date:_____(attach copy)
7. Federal Employer's Identification Number:_____
8. Do you carry Professional Liability Insurance? Yes_____ No_____
   If yes, answer the following:
   a. Policy Number:_____
   b. Company Name:_____
   c. Amount of Limits:_____
   d. Expiration Date:_____

B. PAST AND CURRENT PROJECTS WITH FLORIDA KEYS:

List all projects Firm has completed and/or is presently involved with in the Florida Keys.

Project Name/Description	Owner	Year Completed (Actual or Estimated)	Construction Cost	Amount of Change Orders

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 the _____
(print name of the public entity)

by _____
(print individual's name and title)

for _____
(print name of entity submitting sworn statement)

whose business address is _____

_____

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

(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 materiel misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means finding of guilt of 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 in formation 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 a pooling of equipment or income among persons when not for fair market value under an arm's 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 those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

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 are 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.

_____ 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, 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. However, there has been 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 vendor 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 TOINFORM 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.

_____
(Signature)

Sworn to and subscribed before me this _____ day of _____, 19___

Personally known _____

Or Produced Identification _____ Notary Public -- State of _____

_____ My commission expires _____
(Type of identification)

_____
(Printed, typed or stamped commissioned name of notary public)

FKAA

PROJECT WORK PLAN

FOR:

National Onsite/Decentralized Wastewater Treatment System Demonstration Project in the Florida Keys, Monroe County, Florida

To:

U.S. Environmental Protection Agency
Office of Grants and Debarment
401 M. Street, SW (3909R)
Room 51288
Washington, D.C. 20460

Submitted By:

Florida Keys Aqueduct Authority

May 2001

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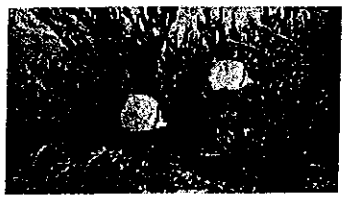
FIGURES

TABLES

National Onsite/Decentralized Wastewater Treatment Demonstration Project in the Florida Keys, Monroe County



PROJECT WORK PLAN

1.0 INTRODUCTION

The Florida Keys Aqueduct Authority (FKAA) is preparing an Application for Federal Assistance (SF-424) for a National Onsite/Decentralized Wastewater Treatment Demonstration Project in the Florida Keys, Monroe County, Florida. The purpose of the project is to evaluate available nutrient reducing onsite and clustered wastewater technologies and to demonstrate the management of decentralized wastewater treatment systems (DWTS) under a utility management structure. Decentralized wastewater systems are defined as onsite and clustered wastewater treatment systems that treat wastewater at or near the site it was generated. The project would include upgrading approximately 100 –200 existing onsite wastewater treatment systems (OWTS) in a study area in the Florida Keys for management by FKAA. The total project cost is $5.1 million, which includes a requested amount from federal assistance of $3.8 million dollars (~75%) and a local match amount of $1.3 million dollars (~25%).

In addition to the SF-424, the FKAA is providing this narrative statement and work plan for U.S. Environmental Protection Agency (EPA) review and comment. The narrative statement provides background information, a project description, and goals and objectives, while the work plan describes the tasks that will be accomplished and demonstrated in the national demonstration project. The document further establishes a preliminary timeline and budget for implementation and completion.

1.1 Background

The Florida Keys: The Florida Keys, located in Monroe County off of the southeastern tip of Florida, are a chain of approximately 800 independent islands, representing the most southerly point of the continental United States. The more developed islands are connected by U.S. Highway 1, a 110 mile stretch of roadway and 42 bridges extending from Key Largo to Key West. All the waters adjacent to the islands have been designated as Outstanding Florida Waters (OFW), and include the 2,800-nautical-square-mile Florida Keys National Marine Sanctuary (FKNMS), the second largest national marine sanctuary in the United States. These waters are home to a complex and dynamic ecosystem, including the world's third largest coral reef system.

Keys Geology: The Florida Keys are a limestone island archipelago extending southwest over 200 miles from the southern tip of the Florida mainland to the Dry Tortugas. The developed areas of the Keys are divided into three regions: 1) the Upper Keys, from the mainland to Upper Matecumbe Key; 2) the Middle Keys, from Upper Matecumbe Key to the Seven Mile Bridge; and 3) the Lower Keys from Little Duck Key to Key West.

The Florida Keys are low-lying, with an average elevation of 3 to 6 feet above sea level. The Middle Keys are generally smaller than the Upper and Lower Keys with numerous wide channels separating each island.

The surface of the Upper and Middle Keys is composed of Key Largo Limestone. The Key Largo Limestone is a coralline limestone composed of coral heads encased in a matrix of calcarenite. The thickness of the formation ranges from 75 to 170 feet and exhibits high porosity and permeability. It occurs below the surface as far north as Miami Beach to as far south as Bahai Honda. Near the northern and southern limits of the Key Largo Limestone, it is overlain conformably by the Miami Limestone (Florida Geological Survey, 1992).

The Lower Keys (with the exception of Little Duck Key, the Newfound Harbor Keys, and a portion of Big Pine Key) are composed of oolitic Miami Limestone. The Miami Limestone is made up of two facies, the oolitic and bryozoan. The bryozoan facies underlies and extends west of the western boundary of the oolitic facies. The bryozoan facies consists of calcareous bryozoan colonies imbedded in a matrix of ooids, pellets, and skeletal sands. The oolitic facies consists of variably sandy limestone composed primarily of oolites with scattered concentrations of fossils. The oolite formation is thin over the southern border of the Lower Keys, reaching a maximum thickness of 40 feet on the northern part of Stock Island. The channels between the Lower Keys are the remnants of the original tidal channels that developed in the sand shoals. The Miami Limestone exhibits high porosity but lower permeability than Key Largo Limestone (NOAA, 1996).

Because of the low topographic relief and pervious nature of the Key Largo and Miami Limestone formations, most rainfall in the Keys infiltrates the surface and forms shallow freshwater lenses. Groundwater in the Keys is restricted to these shallow lenses and deeper waters of the Floridan Aquifer. The freshwater lense generally becomes thicker during the rainy season and thinner or absent during the dry season (NOAA, 1996). Only the largest Keys, such as Big Pine Key, maintain a permanent fresh water lens.

The Floridan aquifer underlies the Miami Limestone. The sediment that comprises the Floridan aquifer system underlies all of Florida, although potable water is not present everywhere. The aquifer's surface in South Florida is generally 500 to 1000 feet deep and its average thickness is about 3000 feet. It is divided into three hydrogeological units; 1) the upper Floridan; 2) the middle confining unit; and 3) the lower Floridan aquifer. In south Florida and the Keys, the upper Floridan aquifer contains brackish groundwater, while the lower Floridan aquifer contains salt water.

Soils in the Keys are very thin over shallow bedrock. The physical characteristics of all soil types present in Monroe County are rated by USDA to have severe or very severe limitations for conventional OWTS. Generally, there is insufficient soil depth to provide purification of septic tank effluent before it reaches the groundwater. Due to the porous nature of the rock combined with tidal influences, the use of conventional OWTS in the Keys may therefore result in inadequately treated sewage leaching into the waterways of the Keys (Monroe County, 1992).

Keys Climate: The Keys have a tropical maritime climate. There are essentially two seasons: 1) Summer which last from May to October; and 2) Winter which lasts from November to April. The summer season is characterized as wet with numerous thunderstorms. The winter months are typically dry with infrequent, fast moving cold fronts. Primarily the warm waters of the Gulf and Atlantic, the Florida Current, and the Gulf Stream influence the climate.

The Keys have very moderate temperatures with an annual average high temperature of 82.4°F and an average annual low temperature of 75.4°F. The prevailing easterly winds which pass over the Gulf Stream transport warm air over the Keys. Cold fronts, which approach from the north are warmed by the Gulf and Florida Bay waters. The Keys have very little land mass in which to modify the air temperature. The air temperature reflects the surface conditions of the water, which maintains the warmer temperatures. Average temperature variation is about 2°F from the Upper to the Lower Keys. The highest daily average temperature of 89.6°F occurs in July and August and the lowest daily average temperature of 66.2°F typically occurs in February. Temperature below freezing has never been recorded in the Keys.

The Keys are one of the driest areas in Florida with an average of 49 inches of precipitation per year. The highest monthly mean rainfall occurs in September (6.5 inches) and the lowest monthly mean rainfall of 1.3 inches occurs in March (NOAA, 1996). The lack of precipitation can be attributed to minimal well-established land/sea breezes and the limited number of large-scale synoptic systems in the area. The majority of the rainfall occurs during summer in the form of locally intense convective storms. A small percentage (18 to 33 percent) of the area's precipitation occurs during the winter. Precipitation peaks in June and the latter part of September. Drought conditions are not common; however, they can occur at any time when stable, stationary air masses inhibit convection.

1.2 Problem Description

Water Quality: The Florida Keys marine ecosystem is dependent on clear water with low levels of nutrients, specifically nitrogen and phosphorus. However, like most natural resources today, rapid development, population growth, and increases in tourism have threatened the health and future existence of the Keys environment. The deterioration of the reef and the entire marine ecosystem has been the subject of many studies. Scientists concur that one of the principle causes of the Keys unhealthy state is the elevated level of nutrients in the surrounding canals and nearshore waters.

Wastewater Treatment: As population and tourism in the Keys have increased over the years, improvements in wastewater treatment and management practices have not kept pace with this growth. As a result, anthropogenic sources of nutrients to confined canal and nearshore coastal waters have increased, resulting in a decline in water quality. Nitrogen and phosphorus are found in high levels in raw sewage and secondary treated wastewater discharges. Research has determined that nitrogen and phosphorus from wastewater are one of the major sources of nutrients to nearshore waters, and scientists generally agree that improved wastewater treatment practices would improve canal and nearshore water quality (EPA, 1999).

Wastewater treatment technologies of today are capable of significantly reducing nutrient levels in wastewater, but the high cost of their implementation on a scale as large as the Keys makes the solution extremely challenging for Monroe County. As a result, improving wastewater practices in the Keys has received a major focus of attention in recent years. Over the last decade, aggressive steps have been taken by federal, state, and local authorities to help restore and maintain the Keys natural ecosystem. Requirements of the Monroe County Year 2010 Comprehensive Plan resulted in the recent development of the Monroe County Sanitary Wastewater Master Plan (CH2M HILL, 2000). This plan outlines recommendations for five regional wastewater collection and treatment systems, twelve community systems, and advanced decentralized wastewater treatment systems (DWTS) for the remainder of the Keys planning area. DWTS are defined as onsite and clustered wastewater treatment systems that treat wastewater at or near the site it was generated.

Since onsite systems will continue to be utilized for wastewater treatment in the Keys, the FKAA is proposing to develop a management structure for DWTS that will allow them to be managed under the FKAA's wastewater utility. Utility management of DWTS is a relatively new concept in the U.S., and funding for this demonstration project will assist FKAA in establishing a DWTS management structure, identifying and testing appropriate onsite wastewater nutrient reduction systems (OWNRS) technologies, and identifying methods and technologies for remote monitoring and management of the OWNRS in the study area.

2.0 WASTEWATER MANAGEMENT IN THE KEYS

2.1 Existing Wastewater Systems

Approximately 23,000 private onsite wastewater treatment systems (OWTS) and 246 small wastewater treatment plants (WWTPs) currently operate throughout the Keys (CH2M HILL, 2000). Each of these onsite systems and treatment plants provide minimal nutrient removal, and generally discharge effluent containing total nitrogen (TN) and total phosphorus (TP) concentrations of approximately 20 mg/L and 6 mg/L, respectively. The onsite systems primarily serve single family residences and small commercial establishments, while the small WWTPs serve condominium and apartment complexes, resorts, motels, restaurants, and other larger commercial establishments where higher volumes of wastewater are generated. Property owners are responsible for managing, operating, and maintaining their individual systems, whether they are onsite systems or small WWTPs.

OWTS are the predominant method of existing wastewater treatment in the Keys, comprised of approximately 15,200 permitted conventional septic systems, 640 aerobic treatment units (ATUs), and 7,200 systems of unknown type (Figure 2-1). Many of the unknown systems are suspected to be cesspools.

Cesspools: Cesspools, or seepage pits, were some of the earliest forms of onsite wastewater systems in the Keys. They consist of a large excavation in the ground lined with brick, stone or block that allowed raw wastewater to seep into the natural rock or groundwater (Figure 2-2). Without a significant soil layer, very little treatment of the wastewater occurs in the cesspool, especially if it intercepts groundwater. Pollutant removal is then limited to what the natural rock provides. It has been estimated that as many as 2,800 of these early cesspools are still in existence in the Florida Keys.

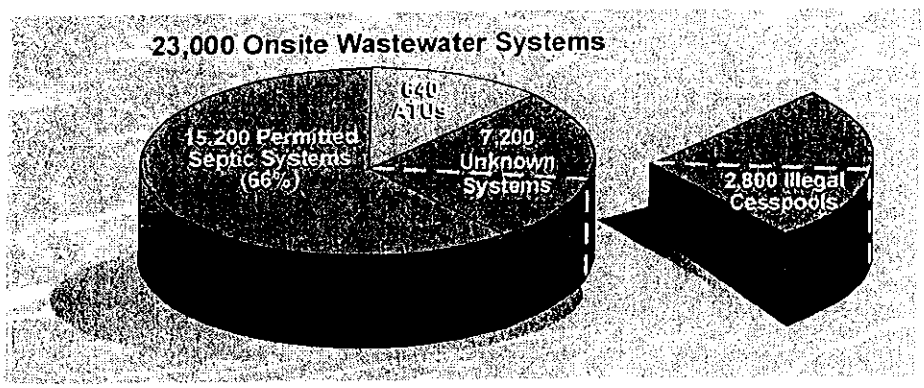


Figure 2-1. Thirty percent, or 7,200 of the 23,000 onsite wastewater systems in the Keys are not permitted, and may include up to 2,800 illegal cesspools.

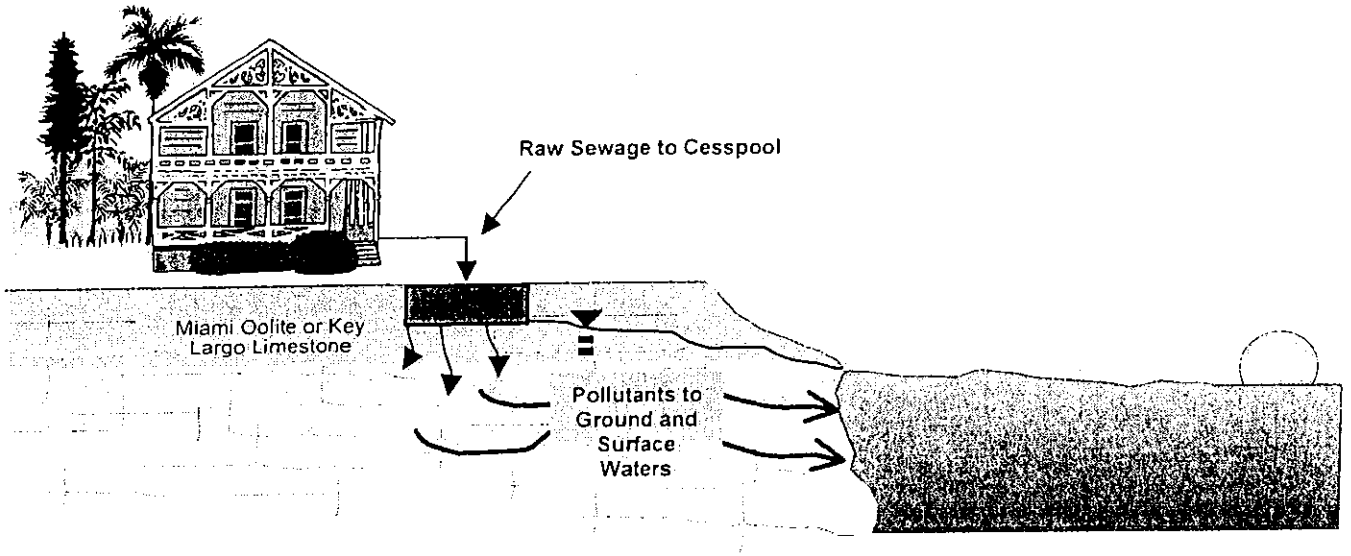


Figure 2-2. Many of the unknown systems in the Keys are cesspools, or seepage pits, and provide little, if any, wastewater treatment.

Conventional OWTS: Modern, conventional OWTS are more sophisticated wastewater treatment systems that rely on land treatment provided by soils for ultimate wastewater renovation and disposal. If constructed properly and operated and maintained over their lifetime, modern land treatment systems, including OWTS, can provide wastewater treatment performance that equals conventional centralized wastewater treatment plants.

Conventional OWTS consist of a septic tank and subsurface wastewater infiltration system (SWIS), or drainfield, and rely on naturally occurring soils to provide most of the wastewater treatment (Figure 2-3). The problem for conventional OWTS in the Keys is that very little or no natural soil exists over the ancient coral/limestone rock. Therefore, soil must be imported to construct conventional OWTS drainfields in the Florida Keys. The limited underlying soils in the Keys reduce the treatment effectiveness of these systems, especially for nutrients.

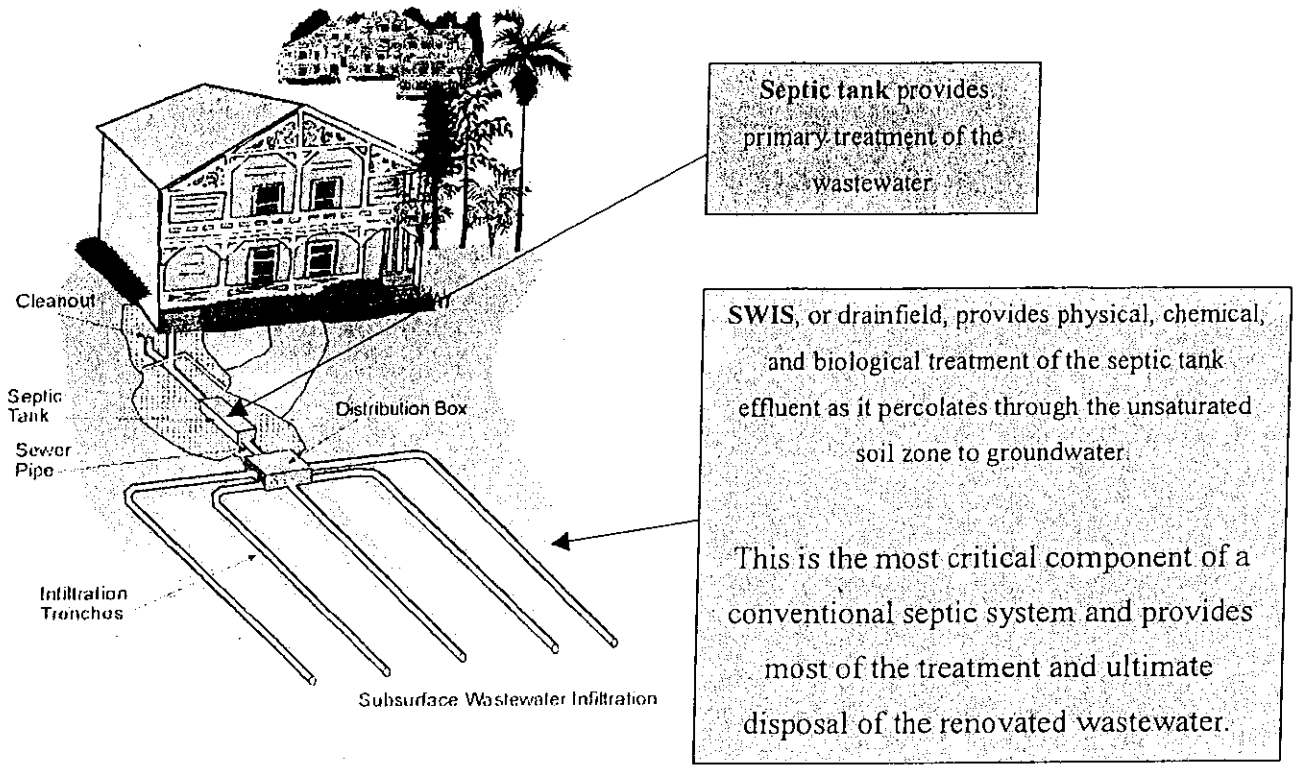


Figure 2-3. Conventional OWTS.

Aerobic Treatment Units (ATUs): Because of the lack of soil in the Keys, the use of small aerobic biological treatment systems, known as aerobic treatment units (ATUs), has become common in recent years. These systems are essentially miniature wastewater treatment plants which function similar to centralized wastewater treatment facilities. Most operate on some variation of the activated sludge process such as extended aeration, although other processes are available. ATUs require less space than a conventional septic tank system, but also require an effluent disposal system because direct discharge of effluent to surface waters is not permitted in Monroe County.

In the Keys, these systems discharge to a SWIS or to a mineral aggregate filter followed by a shallow injection well or borehole drilled to a depth of 90 feet (Figure 2-4). As of 2000, approximately 640 ATUs had been permitted in the Keys (CH2M HILL, 2000).

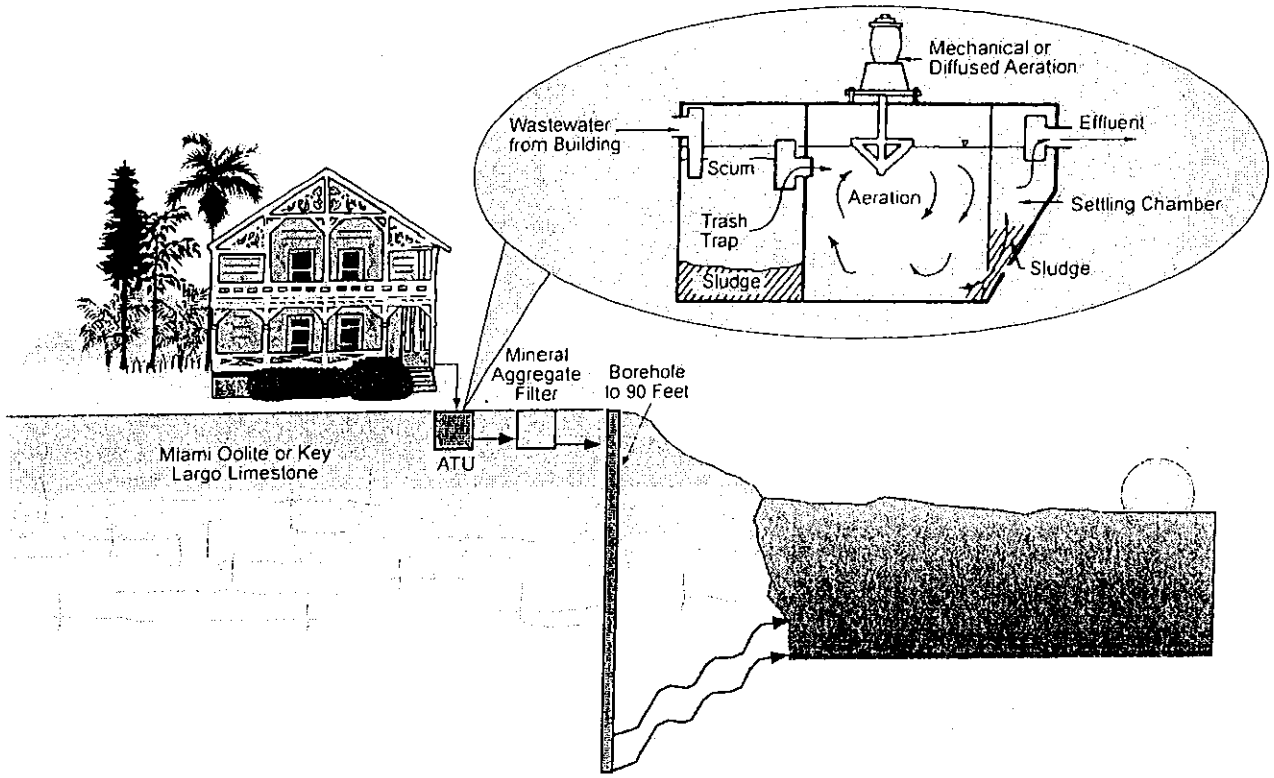


Figure 2-4. Small aerobic biological treatment units (ATUs) are common in the Keys, and function similarly to centralized secondary wastewater treatment facilities.

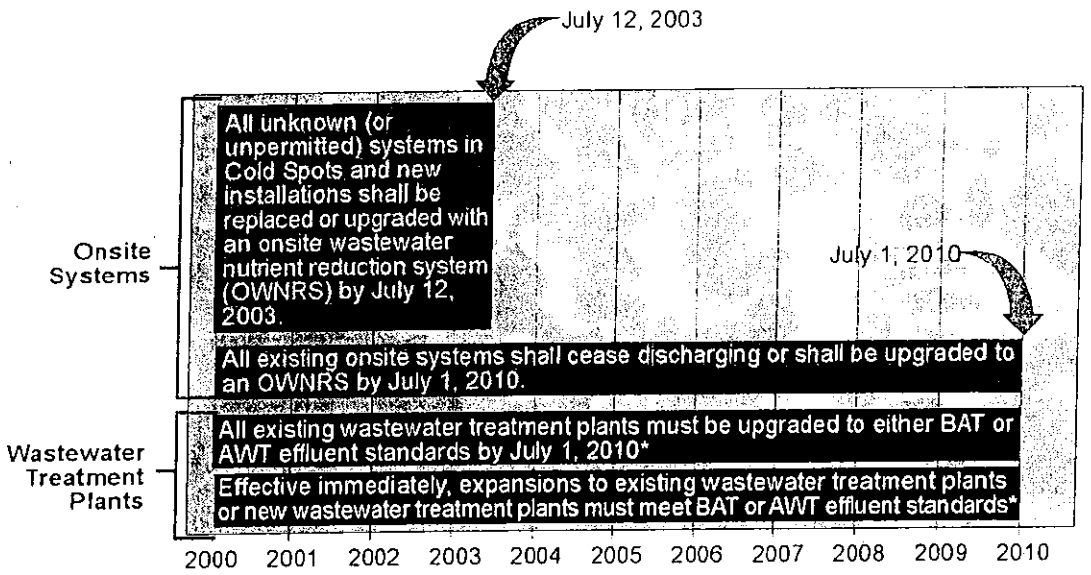
2.2 Requirements for Future Wastewater Systems

Because of the demonstrated adverse effects of wastewater nutrients on the Key's water quality, more stringent water quality criteria for wastewater effluents were established for Monroe County. The Five-Year Work Program for the Monroe County 2010 Comprehensive Plan and the 1999 Florida Legislature established statutory effluent standards and compliance schedules for the Keys as shown in Tables 2-1 and 2-2, respectively.

Table 2-1. Florida Statutory Treatment Standards.

	mg/L			
	Biological Oxygen Demand (BOD)	Total Dissolved Solids (TSS)	Total Nitrogen (TN)	Total Phosphorus (TP)
Onsite Systems (BAT)	10	10	10	1
Community Wastewater Collection and Treatment Systems				
Design flows less than or equal to 100,000 gpd (BAT)	10	10	10	1
Design flows greater than 100,000 gpd (AWT)	5	5	3	1

Table 2-2. Compliance Schedule for Wastewater Treatment Systems in Monroe County.



Onsite Wastewater Nutrient Reduction Systems (OWNRS): The limitations of cesspits, conventional septic systems, and ATUs in meeting the nutrient removal goals in Table 2-1 have resulted in investigations into other technologies for onsite wastewater treatment in the Florida Keys. Onsite treatment systems that meet the effluent criteria are referred to as Onsite Wastewater Nutrient Reduction Systems (OWNRS).

Based on the results of an OWNRS Demonstration Project on Big Pine Key, a biological nitrogen removal system coupled with a physical/chemical phosphorus removal system and a SWIS was the recommended OWNRS combination to meet the statutory treatment standards (Ayres Associates, 1998).

Phosphorus adsorption media was selected for phosphorus removal in the OWNRS alternatives because this method of P removal could be utilized within the SWIS and thus reduce cost. Therefore, the recommended OWNRS alternatives consist of biological treatment units combined with subsurface drip irrigation (SDI) systems in phosphorus adsorption media (such as LECA™ or specified Crushed Brick) infiltration beds (see Figure 2-5). The SDI/Infiltration System combination thus provides phosphorus adsorption, nutrient uptake by plants, and effluent dispersal for the OWNRS alternatives. To meet the 10, 10, 10, 1 effluent limits for $CBOD_5$, TSS, TN, and TP, respectively, at the bottom of the SDI/Infiltration system, the biological nitrogen removal system would need to produce effluent quality of 20, 20, 15, 6 or better prior to discharge to the SDI system.

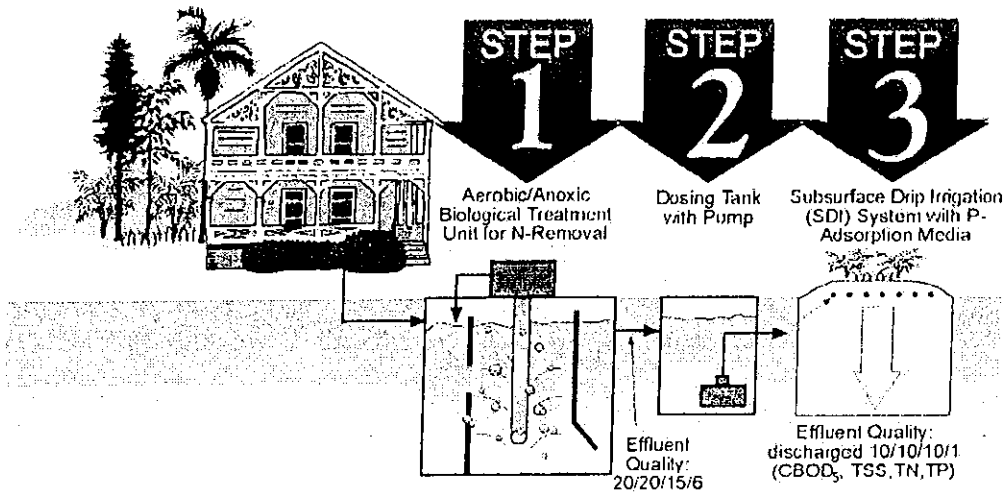


Figure 2-5. Onsite Wastewater Nutrient Reduction Systems (OWNRS) recommended for Monroe County removes nitrogen and phosphorus in a 3-step process.

2.3 Integrated Wastewater Management

Traditionally, the regulatory response to performance problems with onsite wastewater treatment systems has been to become more conservative with design criteria or to seek alternative technologies that might perform better under the given conditions. Unfortunately, what is often ignored is what has made central sewerage successful—professional management. Professional management is what has been lacking historically with onsite systems. Lack of management,

ranging from improper siting, design and installation practices to lack of maintenance and enforcement of standards has been the root of past problems.

Wastewater facilities planning for unsewered areas should not be an either/or approach (Otis, 1998). Planning should begin with equal consideration of all options and the choice of technologies based on appropriate application. The past problems with onsite systems have not been due to inherent flaws with onsite technologies, but our failure to properly manage these existing "decentralized" facilities. When we are able to show that onsite systems can be designed and operated over extended planning periods to meet water quality and public health objectives, onsite systems will gain stature equal to conventional sewerage. This will be achieved only through centralized management. While "decentralization" of treatment is the outcome, centralization of management must be the approach. Service rather than technology must be the focus.

The objective of integrated wastewater management is the appropriate application of technology (Anderson and Otis, 2000). Appropriateness should be based on public health and environmental objectives as well as cost-effectiveness in terms of both monetary and non-monetary considerations (Otis, 1998). This may mean that the most appropriate wastewater facility for a given community would be an integration of both central sewers and onsite and clustered wastewater treatment systems under management be a single utility district. This integrated wastewater management approach is the proposed direction for wastewater management in the Florida Keys.

There are trade-offs in selecting any wastewater treatment technology for a given application. If integrated wastewater management is to be a reality, the advantages and disadvantages of the available treatment options must be objectively evaluated.

The prevailing belief that conventional sewerage is the most appropriate method of wastewater treatment has created biases that make it difficult to evaluate onsite and cluster technology options objectively (Otis, 1998). Many disadvantages of central sewerage are overlooked, just as many advantages of onsite and clustered treatment are disregarded. It should not be assumed that conventional sewerage is the only appropriate approach. Rather, planning should begin by defining the long-range development needs of the community and water quality goals for the area to define the criteria of appropriateness. Table 2-3 presents some of the comparative advantages and disadvantages of conventional sewerage and onsite/cluster treatment within an integrated wastewater management district (Anderson and Otis, 2000).

Table 2-3. Comparative advantages and disadvantages of conventional sewerage and onsite/cluster treatment within an integrated wastewater management district (after Otis, 1998).

	CONVENTIONAL SEWERAGE		ONSITE/CLUSTER TREATMENT	
	Advantages	Disadvantages	Advantages	Disadvantages
Development	Most appropriate for mixed, high density development.	Not cost-effective for low density residential and light commercial development.	Most appropriate for low density residential and light commercial development.	Not cost-effective for mixed, high density development.
Treatment Area	Relatively small, remote site.	Collection sewers required and higher energy inputs necessary for adequate treatment.	Relatively low wastewater loadings resulting in minimal water quality impacts.	Multiple treatment sites require individual designs and private property access.
Effluent Discharge	Single point discharge simplifying monitoring.	High mass and hydraulic loadings to the receiving environment.	Basin-wide discharges for better basin water management.	Surveillance of multiple treatment system discharges.
Treatment Capacity	Excess capacity included for planning period.	High initial capital costs.	Low initial implementation costs because treatment only provided for existing development.	Capacity must be added for each new development.
Biosolids Handling	Single collection point and treatment.	Mixed biosolids that can result in disposal restrictions.	Segregated, digested biosolids eliminating special treatment or disposal.	Collection of biosolids from multiple sources.
Operation and Maintenance	Single treatment plant with real time operation to handle difficult wastes.	Full time, skilled staff needed for continuous operation and maintenance.	Passive treatment with only occasional need for operator intervention.	Scattered treatment sites are often located on private property.

The Monroe County Sanitary Wastewater Master Plan (MCSWMP) took an integrated approach to wastewater planning in the Florida Keys (CH2M HILL, 2000). An extensive decision analysis was performed in the selection of wastewater management alternatives for the 27 study areas which made up the Keys wastewater planning area. The decision models were developed through a joint, collaborative effort between the SWMP Technical Advisory Committee, Monroe County Citizens Task Force on Wastewater, and the BOCC. The model evaluated each wastewater management alternative against five key considerations identified by the stakeholders in the process. These included:

- Minimizing Cost
- Maximizing Implementability
- Maximizing Environmental Benefits
- Minimizing Secondary Impacts
- Maximizing Reliability

Performance criteria were developed for each of these issues and each alternative was then scored based on the resulting decision model. Figure 2-6 shows the decision model flow chart

with the scores assigned to each criterion for alternatives evaluation. Maximizing environmental benefits was the highest scored consideration followed by minimizing cost.

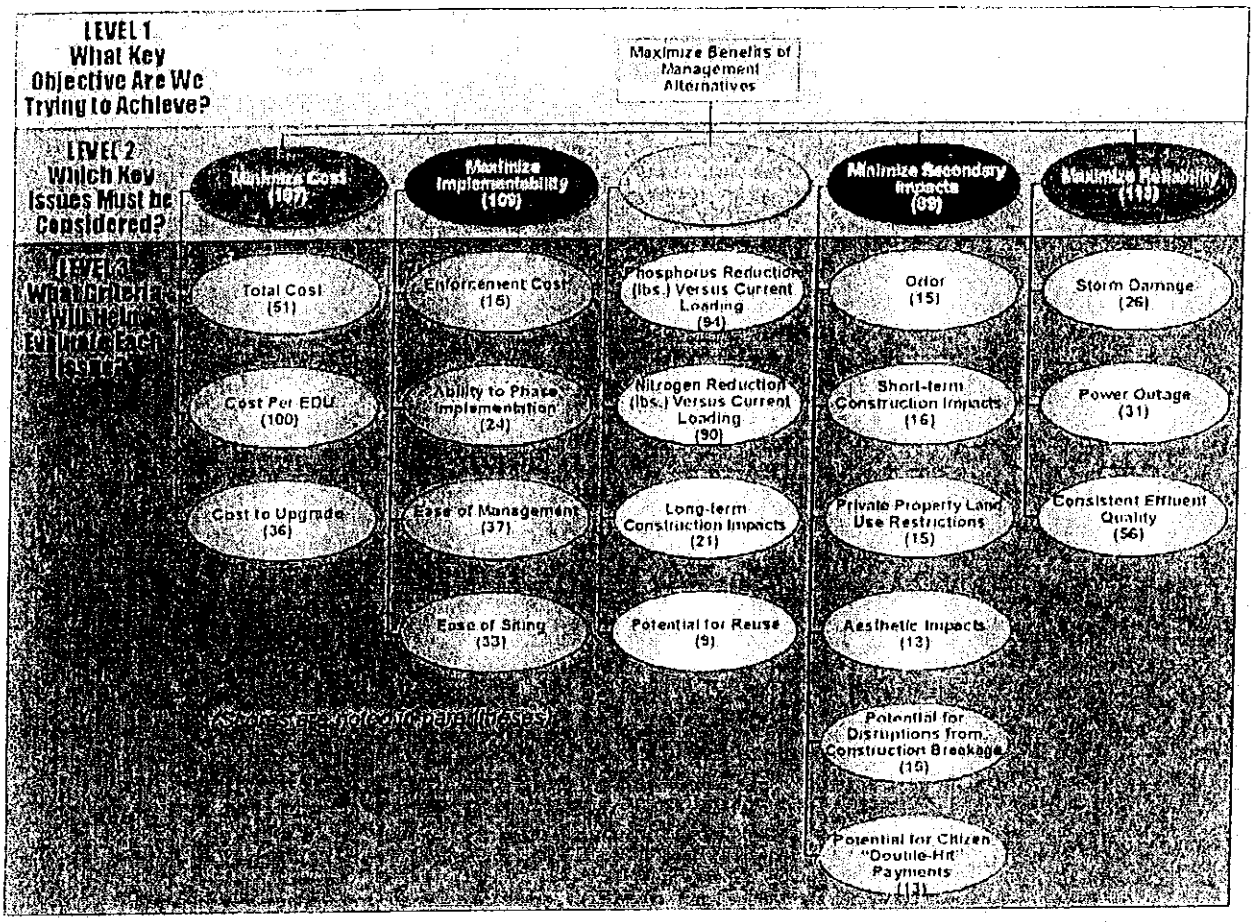


Figure 2-6. Wastewater Management Alternatives Decision Model.

Based on the decision process and other factors, the MCSWMP recommendations included five regional wastewater collection and treatment systems, twelve smaller community systems, and DWTS in the areas defined as "Cold Spots" (CH2M HILL, 2000). The plan includes four principal components for implementation:

1. Upgrade or replace existing onsite wastewater systems with Onsite Wastewater Nutrient Reduction Systems (OWNRS) in "Cold Spot" areas, which are located in lower density areas of the Keys. "Cold Spots" consist of areas not designated "Hot Spots", and generally will continue to utilize DWTS for wastewater treatment under the master plan.

2. Implement centralized community wastewater collection and treatment system service areas in the more densely developed and highest ranked "Hot Spot" areas, where service area analyses indicate central sewer systems are more cost effective and environmentally

sound. "Hot Spots" refer to areas that will receive a community wastewater collection and treatment system by the year 2010.

3. When the number of community treatment systems and the number of customers in selected areas of the Upper and Middle Keys (i.e. Marathon, Islamorada, Tavernier, and Key Largo) increase to the point where it is no longer economical to operate community treatment systems, consolidate them into larger regional treatment systems.

4. Phase implementation of smaller regional systems in the Lower Keys and construct treatment plants at the proposed regional sites, so that interim community treatment systems are not necessary.

Thus, the success of an integrated wastewater management plan in the Keys will depend on the involvement of a wastewater managing utility in the design, installation, operation and monitoring of decentralized wastewater treatment systems as well as centralized collection and treatment systems to ensure that the goals of the MCSWMP are met.

FKAA as the Keys Wastewater Utility: In May 1998 the Florida Legislature passed House Bill 4349, establishing the FKAA as the wastewater authority for unincorporated Monroe County. The FKAA then executed a Memorandum of Understanding with Monroe County Board of County Commissioners, to develop wastewater districts in unincorporated portions of the Florida Keys. In addition, House Bill 4349 was passed from the Florida Legislature through the Governor further clarifying the role of the FKAA as a wastewater authority and providing means for the FKAA to bond without referendum.

The first project to be developed under FKAAs new wastewater utility is the Little Venice area in Marathon. The project includes the construction of a vacuum sewer collection system and an advanced wastewater treatment plant.

Decentralized Wastewater Treatment Systems: The MCSWMP has also identified areas that will not to be served by centralized wastewater collection and treatment systems due to economics, location, and low density of development. These areas will be required to install decentralized wastewater treatment systems, such as OWNRS, that provide nutrient removal and meet current effluent water quality requirements.

Therefore, as part of their role as a wastewater utility, the FKAA's goal is to develop the administrative, technical and operational framework to effectively and efficiently manage DWTS in the Florida Keys through a National Decentralized Wastewater Treatment and Disposal Demonstration Project. The remainder of this document discusses the project objectives and the proposed work plan to accomplish this goal.

3.0 PROJECT OBJECTIVES AND SCOPE

3.1 Project Objectives

The primary objectives of the National Onsite/Decentralized Wastewater Treatment System Demonstration Project in the Florida Keys are as follows:

1. Establishment of a DWTS management framework for FKAA

2. Identification and testing of remote monitoring and management technologies for DWTS in the Keys

3. Identification and testing of appropriate OWNRS treatment technologies for use in DWTS designated areas (Cold Spots) in the Keys

4. Implementation of Objectives 1-3 at a "Cold Spot" study site in the Keys

3.2 Project Scope

The primary objectives will be achieved by completing a series of tasks under each objective. These tasks are briefly outlined below, and detailed in the next section.

1. Establish DWTS Management Framework – This phase will develop the framework for management of DWTS by the FKAA.

   1.1. Develop a DWTS management and monitoring management plan
   1.2. Develop a DWTS management and monitoring database
   1.3. Develop a DWTS operation and maintenance program
   1.4. Identify and resolve legal issues associated with DWTS management
   1.5. Develop cost, financing, rate, and billing programs
   1.6. Develop an education and training program
   1.7. Develop a public outreach program

2. Testing of Remote Monitoring and Management Technologies – Technologies, methods and equipment for the remote monitoring and management of DWTS will be selected and tested under this phase of the project.

   2.1. Identify functions from Phase 1 for a remote monitoring and management plan
   2.2. Identify hardware, software, and monitoring/control equipment needs
   2.3. Install remote monitoring and control equipment on OWNRS at Big Pine Key
   2.4. Install remote monitoring and control equipment on OWNRS in North Key Largo study area.
   2.5. Install management and control equipment at FKAA

2.6. Refine remote monitoring and management plan for DWTS
2.7. Prepare report with recommendations for remote monitoring and management

3. Testing of OWNRS Treatment Technologies - This phase of the project will be conducted utilizing the OWNRS test facility previously established by EPA and Florida DOH on Big Pine Key.

3.1. Develop operational plan and procedures
3.2. Develop data collection and sampling QA/QC procedures
3.3. Identify appropriate OWNRS technologies for testing
3.4. Install and start-up OWNRS and remote monitoring equipment
3.5. Conduct testing and evaluation phase
3.6. Data collection and analyses
3.7. Prepare technical memorandum

4. DWTS Demonstration Project Implementation – This phase of the project will evaluate the management structure and treatment technologies in the field. This will be accomplished by upgrading existing OWTS in a study area in North Key Largo for management by FKAA.

4.1. Identify existing systems in North Key Largo for replacement
4.2. Evaluate clustering options and potential treatment facility sites
4.3. Estimate design flows
4.4. Prepare DWTS design and specifications
4.5. Prepare remote monitoring and management system design and specifications
4.6. Prepare construction documents and obtain permits
4.7. Bidding of project
4.8. Construct systems
4.9. Conduct system monitoring and data collection
4.10. Prepare draft and final report of the project

4.0 DESCRIPTION OF PROJECT STUDY SITES

Two field study sites have been chosen to meet the objectives of the National Onsite/Decentralized Wastewater Treatment System Demonstration Project in the Florida Keys. A brief description of these study sites is provided in this section.

4.1 Big Pine Key OWNRS Test Facility

Testing of additional nutrient reducing onsite systems is proposed as part of this demonstration project. This testing will utilize the existing OWNRS test facility on Big Pine Key, which was developed previously under EPA funding through the Florida Department of Health (DOH).

The Big Pine Key OWNRS test facility is located at the Big Pine Key Road Prison, (BPKRP), a minimum-security correctional institute which houses non-violent inmates (Figure 4-1).

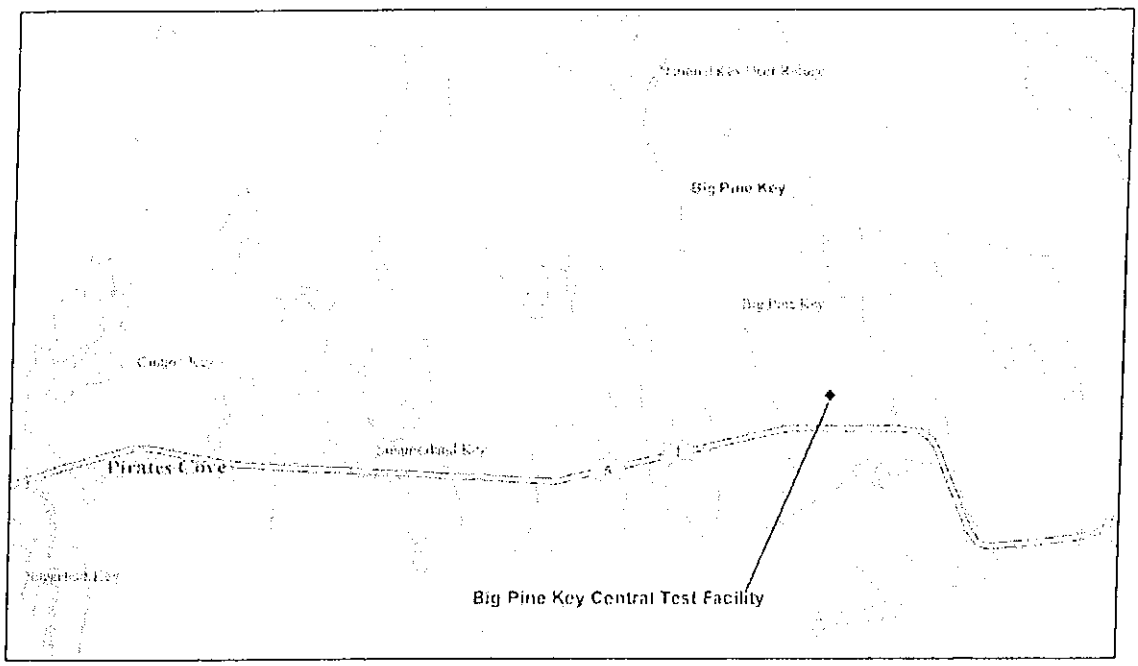


Figure 4-1. Big Pine Key Central Test Facility Location Map.

The prison includes several inmate dormitories, a kitchen, and a laundry facility. BPKRP is served by an 8000 gallon per day (gpd) domestic wastewater treatment plant (WWTP) located on the property.

Wastewater generated by the BPKRP is domestic in nature, and is representative of other residential wastewater flows within the Florida Keys. Raw wastewater from the dormitories, kitchen, and laundry flow to a lift station and is then pumped to the wastewater treatment plant.

The OWNRS test facility is located adjacent to the WWTP and a portion of the raw wastewater flow from the lift station is diverted to the test facility.

The test facility was designed to allow comparative testing of numerous onsite wastewater treatment processes simultaneously, under controlled conditions, with a common wastewater source. Use of a common source eliminates the difficulty of making valid comparisons of technology performance based on a limited number of installations with widely varying wastewater characteristics. The test facility allows accurate monitoring of influent wastewater quality and flow, and the capability for flow-composited effluent sampling to determine treatment performance. In addition to treatment performance, the operation, maintenance, and costs associated with each system can be cost-effectively monitored.

Figure 4-2 provides a schematic of the test facility as currently configured. New treatment systems would be installed, operated, and monitored as part of this demonstration project.

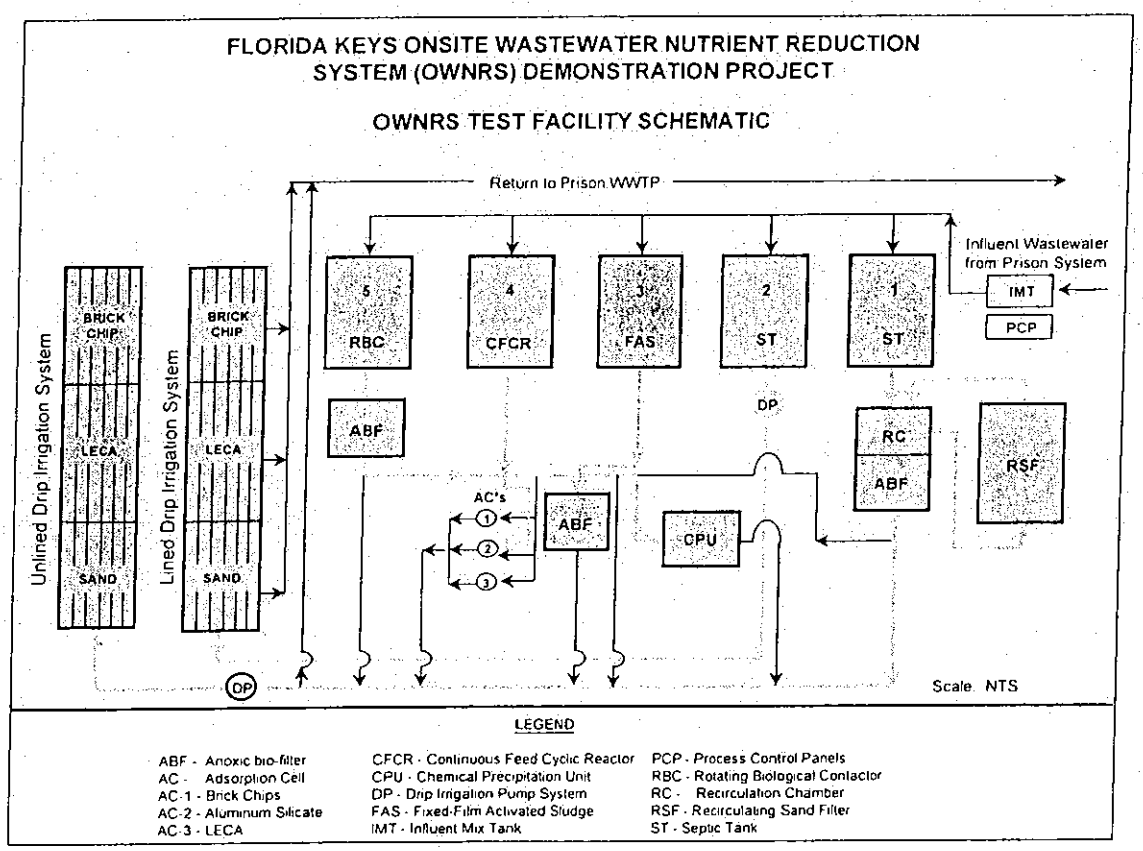


Figure 4-2. OWNRS Test Facility Schematic (Ayres Associates, 1998).

4.2 North Key Largo DWTS Area

The MCSWMP identified areas that would not be served by a central wastewater treatment and disposal utility system and would continue to utilize DWTS. This affects approximately 1,780 property owners throughout Monroe County. Based on preliminary review of these DWTS

areas, a North Key Largo area was selected as the primary site for the National Onsite Wastewater Treatment System Demonstration Project in the Keys. Figures 4-3 and 4-4 show the location of this area in the Keys. Although the North Key Largo area is adjacent to a proposed central wastewater system that will serve approximately 12,000 equivalent dwelling units, the area chosen was not expected to be served by this system because it is located in a hammock preserve, sparsely developed, and is economically unfeasible. There are approximately 114 developed properties in the primary area to be used for the demonstration.

Figure 4-3. Will be inserted by FKAA

Figure 4-4. Will be inserted by FKAA

5.0 PROJECT APPROACH

Four distinct project phases have been developed to accomplish the objectives of the Florida Keys National Onsite Wastewater Treatment System Demonstration Project. This section provides a description of each phase and the tasks proposed to complete them.

5.1 PHASE 1: Establish DWTS Management Framework

Organizational structures for managing DWTS do not exist in most communities, although a management structure is required almost universally for centralized wastewater facilities and for other services such as electric, telephone, cable TV and water. In the case of onsite wastewater treatment systems (OWTS), state regulations generally prescribe the design and construction standards for onsite systems and enforcement of these regulations falls to local agencies, generally the health department, often with limited authority, little wastewater engineering expertise, and insufficient staff resources. Inconsistent laws and policies in the U.S. have resulted in effective management structures for the larger, urban and centralized wastewater systems, while small, rural, decentralized wastewater systems such as OWTS frequently remain unmanaged.

Experience has shown, however, that DWTS must be managed from site evaluation and design through the life of the system to maintain proper function and to protect ground and surface water quality (EPA, 1997; Ciotoli and Wiswall, 1982). Inadequate operation and maintenance of OWTS by homeowners have led to system failures and the resulting perception that decentralized wastewater systems are less reliable than centralized facilities. This phase of the project will develop the framework for management of decentralized wastewater treatment systems (DWTS) by the FKAA.

The objectives of developing a management program for DWTS in Monroe County are to ensure that:

1) performance requirements are established for restoring and protecting the surrounding and nearshore waters;
2) the performance of the onsite wastewater treatment systems are consistent with those requirements; and
3) qualified service providers are available to perform necessary design, construction, operation, maintenance, and monitoring of the systems such that they perform satisfactorily over their service lives.

Table 5-1 lists the functions and responsibilities of an effective wastewater management program for decentralized systems (USEPA, 1997).

Table 5-1. Functions and Responsibilities of an Effective Wastewater Management Program.

Planning and Administration	Plan preparation Plan review coordination Research and development Office and staff management
Site Evaluation	Guidelines and criteria Evaluation certification Site suitability analysis
System Design	Standards and criteria Designer certification System design Design review Permit issuance
System Installation	Construction supervision Installer certification Record keeping Permit issuance
Monitoring	Sampling and monitoring program Reporting and tracking system
Operation and Maintenance	Procedures and regulations Operator/inspector certification Routine inspections Emergency inspections System repair/replacement Repair supervision Performance certification System ownership
Residuals Disposal	Disposal regulations Hauler certification Record keeping Equipment inspections Facility inspections Facility operation
Financing	Secure funding Arrange financing options Set rates/charges Collect charges
Public Information and Education	Develop methods Disseminate information Respond to complaints

The onsite wastewater management planning process is a critical first step and involves coordination of a variety of technical and institutional factors, including engineering, environmental, legislative, public education, socioeconomic, and administrative considerations. The interaction of these factors is illustrated in Figure 5-1.

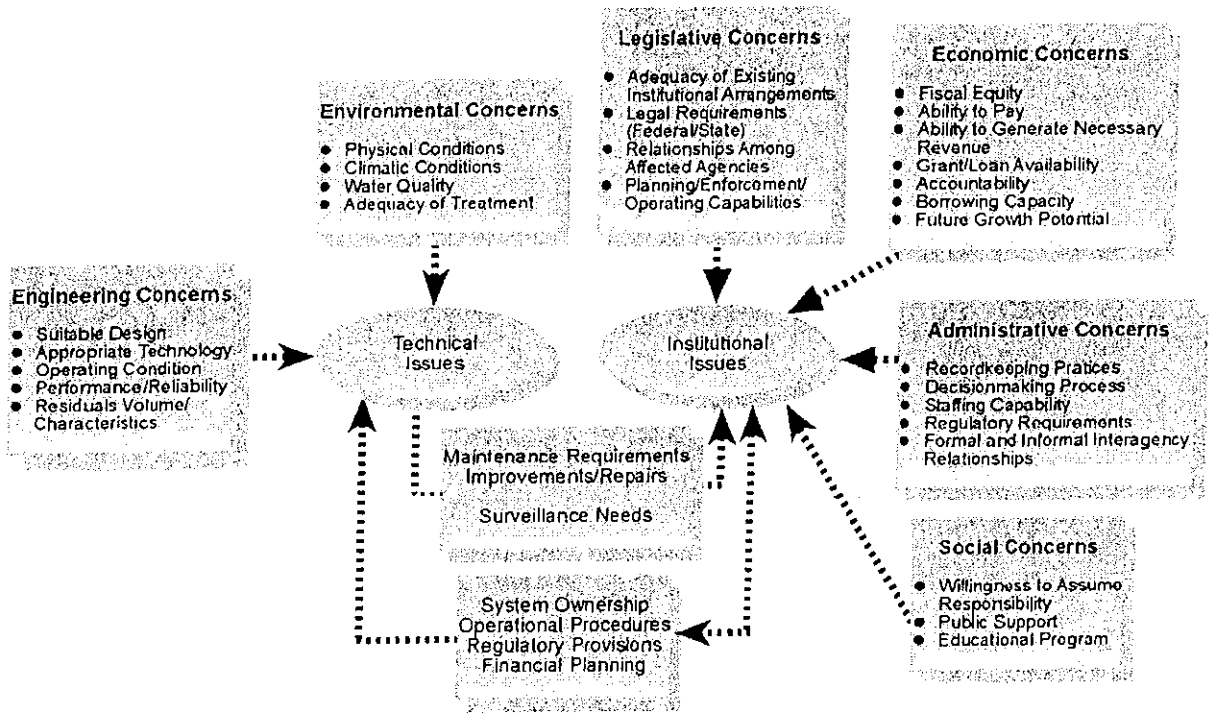


Figure 5-1. Technical and Institutional Factors in Onsite Wastewater Systems Management Planning (Adapted from USEPA, 1997).

One of the most important aspects of the planning process is to determine who will be responsible for the decentralized wastewater management program and the functions listed above. The responsibility for these functions can be distributed among the following parties:

1. Homeowners/property owners of onsite systems
2. OWTS service providers such as engineers, installers, inspectors, soil scientists, septage haulers, and regulatory agency officials
3. A program management entity such as FKAA, which at a minimum, administers the program.

The structure of the management program depends on the functions to be performed and the resources of the community. The program structure should include mechanisms for proposing and enforcing regulations, performing system inspections and maintenance, and monitoring program performance. The success or failure of an onsite wastewater management program depends significantly on the choice of the management entity. Once a community defines the specific functions needed to support the program operation, it must then determine whether existing

organizations have the statutory authority and resources to carry out these functions. If existing institutions lack certain legal powers, legislative modifications may be necessary.

The U.S. EPA has recently developed *EPA Guidelines for Management of Onsite/Decentralized Wastewater Systems* (U.S. EPA, 2000). The purpose of the guidelines is to raise the level of performance of onsite/decentralized wastewater systems through improved management programs. The guidelines contain a set of model programs that are structured to reflect an increasing need for more comprehensive management as the sensitivity of the environment and/or the degree of technological complexity increases. A program's designation increases progressively from Model Program 1 through Model Program 5, reflecting the increased level of management activities needed to achieve water quality and public health goals. Table 5-2 presents a brief description of each model program and compares the management objectives, benefits and limitations of each. The EPA guidelines will be used as a basis in developing the framework for management of DWTS in the Keys by the FKAA.

Table 5-2. Summary of EPA Guidelines for Management of Onsite/Decentralized Wastewater Systems (USEPA, 2000).

MODEL PROGRAM	TYPICAL APPLICATION	MANAGEMENT OBJECTIVES	BENEFITS	LIMITATIONS
1	Areas of low environmental sensitivity, where conventional onsite systems are adequate to protect water quality and public health	SYSTEM INVENTORY AND AWARENESS OF MAINTENANCE NEEDS To ensure conventional onsite/decentralized systems are sited and installed properly in accordance with appropriate State/tribal/local regulations and codes are periodically inspected, maintained, and repaired as necessary	Relatively easy and inexpensive to implement and maintain. (Programs are based upon conventional, prescriptive system designs that rely upon conservative site criteria and system design requirements promulgated in codes).	No mechanism to ensure operating compliance of systems. No mechanisms to identify problems before failures occur. Limits building sites to those meeting prescriptive requirements.
2	Areas such as wellhead or source protection areas, where sites are marginally suited for conventional systems, requiring alternative, enhanced treatment systems to be implemented.	MANAGEMENT THROUGH MAINTENANCE CONTRACTS To allow the use of more complex mechanical treatment options in areas of higher density or some environmental sensitivity. Requires maintenance contracts to be maintained between the owner and equipment manufacturer between the owner and	Reduces the risk of failure through the requirement for routine maintenance of mechanical components by skilled personnel.	State/tribal/local agency may have difficulty tracking and enforcing compliance with the maintenance requirements and/or contract.

		equipment manufacturer/supplier or service provider over the life of all system.		
3	Environmentally sensitive areas, such as where conventional systems are a potential threat to drinking or shellfish growing waters. Engineered designs are needed, to meet specific performance requirements based on site characteristics.	**MANAGEMENT THROUGH OPERATING PERMITS** To allow the use of onsite/decentralized treatment on sites with a greater range of characteristics than allowed by prescriptive codes. Establishes specific and measurable performance requirements, renewable operating permits, and regular compliance monitoring reports, in addition to requiring maintenance contracts.	Increases the range of sites suitable for onsite/decentralized treatment. Avoids problem of owner not managing system adequately and continues to operate a non-compliant system. Reduces the risk of failures by requiring that performance requirements be met to renew limited term operating permit.	Needs a higher level of technical/ engineering expertise to implement.
4	Areas where there is suspected impairment of receiving waters such as sole source aquifers, critical aquatic habitats, outstanding natural resource waters, or other areas where the environmental and technology concerns require reliable, long-term system operation and maintenance.	**UTILITY OPERATION AND MAINTENANCE** To provide professional management of the siting, design, construction, operation, maintenance, etc. of onsite/decentralized systems through the creation of public or private utilities that own and manage systems within the service area.	Simulates the municipal model of central sewerage by transferring all responsibility from the property owner to a professional entity, reducing risk of non-compliance to lowest level. Allows effective area-wide wastewater planning through integration of onsite/decentralized systems with conventional sewerage. Avoids conflicts between owner and operator.	Property owner may oppose utility's easement to property for the system. Additional regulatory oversight needed to evaluate and ensure that the utility is technically and financially viable. Greater financial investment by utility due to purchase of systems and components. Requires authorizing legislation.

The following tasks will be completed during Phase 1 of the project.

Florida Keys Aqueduct Authority

Environmental Services Department

P.O. Box 1239, 1100 Kennedy Drive, Key West, Florida 33041-1239
Phone: (305) 296-2454
Fax: (305) 296-8747

FAX

To: RAY SUMOKUBO

Company: BOYLE

Reference:

Date: 07/03/01

Fax #: (941) 278 0913

From: TIM BERGIN

Number of pages including cover sheet: 2

Comments:

1.1. Develop a DWTS management and monitoring plan

The recently developed EPA guidelines will be used to develop a detailed management and monitoring plan for DWTS in Monroe County, based on FKAA authority to manage wastewater systems in the Keys. The DWTS management and monitoring plan will include the following elements as sub-tasks:

1.1.1. System ownership structure
1.1.1.1. Individual OWTS
1.1.1.2. Clustered DWTS
1.1.2. Planning and administration
1.1.2.1. Permit requirements
1.1.2.2. Plan Preparation
1.1.2.3. Plans review and approval
1.1.2.4. Research and development
1.1.2.5. Office and staff management
1.1.3. Site evaluation
1.1.3.1. Criteria and guidelines
1.1.3.2. Certification of evaluation
1.1.3.3. Site suitability analysis
1.1.4. System design
1.1.4.1. Criteria and standards
1.1.4.2. Designer certification
1.1.4.3. System design procedures
1.1.4.4. Design review and approval
1.1.4.5. Permit issuance
1.1.5. System installation
1.1.5.1. Construction supervision
1.1.5.2. Installer certification
1.1.5.3. Recordkeeping
1.1.5.4. Permit assistance
1.1.6. System monitoring
1.1.6.1. Sampling and monitoring program
1.1.6.2. Reporting and tracking system

1.2. Develop a DWTS management and monitoring database

Based on the management and monitoring plan developed in Task 1.1, a customized database will be developed to assist FKAA in tracking the elements of the program. The management and monitoring database will be linked to remote monitoring and control equipment data developed in Phase 2 of the project.

1.3. Develop a DWTS operation and maintenance program

A detailed operation and maintenance program plan will be developed to ensure proper performance of DWTS in the Keys. The program will utilize the recent EPA guidelines and the experience of other DWTS or OWTS management entities. The operation and maintenance program plan will include the following elements as sub-tasks:

1.3.1. Procedures and regulations for O&M
1.3.2. Operator/inspector certification requirements
1.3.3. Define routine inspection requirements
1.3.4. Define emergency inspection requirements
1.3.5. Rules for system repair and/or replacement
1.3.6. Repair supervision and approval
1.3.7. Monitoring and performance certification
1.3.8. Residuals Disposal
1.3.8.1. Sludge/septage disposal requirements
1.3.8.2. Hauler certification
1.3.8.3. Record keeping
1.3.8.4. Equipment inspections
1.3.8.5. Residuals facility inspections
1.3.8.6. Residuals facility operation

1.4. Identify and resolve legal issues associated with DWTS management

Once the specific functions needed to support the management plan are defined, it must be determined whether FKAA has the statutory authority and resources to carry out these functions. If FKAA lacks certain legal powers, legislative modifications may be necessary. Legal issues that FKAA may need to address include:

1.4.1 Establishment of wastewater districts in the Keys
1.4.2 Easements on private property
1.4.3 Authority to establish standards and specifications for design and construction
1.4.4 Authority to establish and enforce maintenance contracts\
1.4.5 Establishment of policy and procedures
1.4.6 Procurement services

1.5. Develop cost, financing, rate, and billing programs

Detailed costs for various DWTS components will be developed during the implementation of the demonstration project. These costs will include capital, administrative, operational and maintenance costs. Based on these generated cost data, detailed budgets will be developed to include the total costs of operating the decentralized wastewater management utility. The

developed budgets will be used to develop funding and financing needs and to establish rates and billing programs for DWTS service. This task will include the following sub-tasks:

1.5.1. Detailed DWTS cost analysis
1.5.1.1. Individual OWTS
1.5.1.2. Clustered DWTS
1.5.2. Define DWTS management program budgets
1.5.3. Determine funding and financing needs for DWTS program
1.5.4. Establish rates and billing procedures for DWTS service

1.6. Develop an education and training program

An education and training program for DWTS will be developed under this task. The program will include elements for property owners (DWTS customers) as well as DWTS service providers. The following sub-tasks will be accomplished to complete this task:

1.6.1. Develop DWTS customer education program
1.6.1.1. Bill stuffer, Do's and Don'ts of OWTS
1.6.1.2. Educational video on OWTS O & M
1.6.2. Develop DWTS service provider training and education program
1.6.2.1. Classroom training modules on OWTS management
1.6.2.2. Field training modules at Big Pine Key facility

1.7. Develop a public outreach program

A public outreach program will be developed to encourage the participation and cooperation of the property owners in the demonstration project. This program will include the following elements as sub-tasks:

1.7.1. Develop project website to keep public informed on the status of the project.
1.7.2. Develop presentations for interest groups such as chambers of commerce, homeowners associations, civic groups, etc.

5.2 PHASE 2: Selection and Testing of Remote Monitoring and Management Technologies

Inadequate operation and maintenance of OWTS by homeowners have led to system failures and the resulting perception that decentralized wastewater systems are less reliable than centralized facilities. Centralized management of OWTS can provide proper operation and maintenance, however, when advanced technologies such as OWNRS are required, the routine O&M of hundreds of individual systems becomes time consuming. Recent developments in remote monitoring and controls provide integrated telemetry, data acquisition, and optimized control in relatively inexpensive pre-packaged control systems for the DWTS industry.

This phase of the project will select and evaluate technologies, methods and equipment for the remote monitoring and management of DWTS in the Keys. This will be accomplished through the following tasks:

2.1. Identify functions from Phase 1 for remote monitoring and management

Three levels of remote monitoring and control (RMC) will be developed and evaluated; low, medium, and high. Low level remote monitoring will only include monitoring of basic functions and will provide no remote control or management of the system. Alarm functions would be included in the low level RMC plan. Medium RMC would include the basic functions in the low level plan plus the addition of data acquisition, or the ability to remotely connect to an OWTS control system from a central location to collect or check operational data such as close cycles or pump run time. The medium level RMC would still not provide remote control or management of the system. High level RMC would include monitoring of as many functions as economically feasible as well as the ability to control and manage several system operational functions from a remote location. For example, the high level RMC plan may allow the operator to operate pumps, blowers, or other system components from a remote location.

2.2. Identify hardware, software, and monitoring/control equipment needs

Several sources of equipment will be identified for each level of remote monitoring and control developed in Task 2.1.

2.3. Install remote monitoring and control equipment on OWNRS at Big Pine Key

Low, medium, or high RMC systems will be installed on the OWNRS being evaluated at the Big Pine Key OWNRS test facility. These RMC systems will be tested and evaluated as part of Phase 3.

2.4. Install remote monitoring and control equipment on OWNRS in North Key Largo study area

Low, medium, or high level RMC systems will be installed on the OWNRS in the North Key Largo study areas based on the results of Phase 3. Final evaluation of RMC systems will then be conducted as part of Phase 4, with recommendations for overall Keys implementation to FKAA.

2.5. Install management and control equipment at FKAA

Hardware and software compatible with the RMC equipment installed at Big Pine Key will be installed at a FKAA management facility.

2.6. Refine remote monitoring and management plan for DWTS

Based on the results of this phase of the project, modifications and refinements to the RMC systems will be evaluated and implemented as feasible. An overall assessment of remote monitoring and management for DWTS in the Keys will be conducted, including cost-effectiveness relative to traditional management.

2.7. Prepare report with recommendations for remote monitoring and management

A Phase 2 Report will be prepared recommending the level of remote monitoring and management for FKAA DWTS management.

5.3 PHASE 3: Testing of OWNRS Treatment Technologies

This phase of the project will be conducted utilizing the OWNRS test facility previously established by EPA and Florida DOH on Big Pine Key. Details of the facility design, operation, and construction are found in a report to DOH by Ayres Associates (1998). Five OWNRS will be identified and tested during this project phase.

The following tasks will be conducted as part of this evaluation:

3.1. Develop operational plan and procedures

A detailed operational plan and procedures will be developed for the OWNRS testing. The operational plan will be adapted from a protocol such as the National Sanitation Foundation (NSF) Standard 40 (NSF, 1990) for aerobic treatment units (ATU) or more recent test protocols developed by NSF under the U.S. EPA Environmental Technology Verification (ETV) program. This plan will be similar to past testing at the Big Pine facility so that comparisons can be made with previously tested treatment technologies. The following elements will be included in the operational plan as sub-tasks:

3.1.1 Establish hydraulic loading conditions and flow monitoring for normal testing
3.1.2 Establish hydraulic loading conditions and flow monitoring for stress testing
3.1.2.1 Vacation conditions
3.1.2.2 Laundry day conditions
3.1.2.3 Seasonal occupancy
3.1.3 Develop operational procedures for routine performance monitoring
3.1.3.1 Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)
3.1.3.2 Total Suspended Solids (TSS)
3.1.3.3 Total Nitrogen (TN)
3.1.3.4 Total Phosphorus (TP)
3.1.3.5 Fecal Coliform Bacteria
3.1.3.6 Other parameters
3.1.4 Develop operational procedures for microbiological performance monitoring
3.1.4.1 Bacteriological parameters
3.1.4.2 Viral parameters
3.1.5 Develop operation and maintenance monitoring procedures
3.1.5.1 Monitoring of treatment system operational requirements
3.1.5.2 Monitoring of treatment system maintenance requirement
3.1.6 Develop operation schedule for OWNRS testing

3.2. Develop data collection and sampling QA/QC procedures

This task will establish the quality assurance/quality control (QA/QC) procedures [illegible]ata from the OWNRS test facility. All sampling and analyses will be conducted in acco[illegible] w[illegible] IV and/or FDEP standard operating procedures for environmental monitoring [illegible]nalyse following sub-tasks will be included:

3.2.1 Establish standard operating procedures (SOPs)
3.2.1.1 Wastewater influent and effluent sampling
3.2.1.2 Laboratory analyses
3.2.2 Develop schedule for blank, duplicate, split and spiked samples

3.2.3 Develop field instrument calibration and adjustment procedures

3.3. Identify appropriate OWNRS technologies for testing

Five OWNRS treatment technologies can be tested simultaneously at the Big Pine Key facility. This task will identify and rank various commercially available OWNRS for testing in this demonstration project. Criteria that will be used to select the units to be tested will include:

- Documented performance data demonstrating advanced treatment and nutrient removal capabilities which will meet the treatment standards for Monroe County;
- Reliable and consistent performance;
- Relatively passive operation requiring minimum operator intervention;
- Available in treatment capacities for single home use;
- Reasonable equipment, construction and operating costs;
- Use of locally available construction materials;
- Readily accepted by homeowners; and
- Willingness of manufacturer to participate in the project and furnish equipment.

Selection of the treatment units will be accomplished through the following sub-tasks;

3.3.1. Develop manufacturer submittal requirements including criteria and ranking methods for selection of treatment technologies

3.3.2. Solicit OWNRS technology manufacturers through direct mailings and advertisements in journals and publications of the on-site industry

3.3.3 Evaluate and rank submittals based on criteria developed in 3.3.1

3.3.4 Enter into agreements with highest ranked manufacturers

3.4. Install and start-up OWNRS and remote monitoring equipment

The Big Pine test facility will be operated by the FKAA over the course of the demonstration project. The selected OWNRS and remote monitoring equipment manufacturers will be responsible for the installation and start-up of their equipment, however. Each manufacturer will be given a specified time period to install and start up the equipment and confirm that the operation is as designed. The FKAA will then take over operation and monitoring of the equipment so that an independent evaluation of system performance can be conducted. Manufacturers will be notified if problems with their equipment arise, and given the opportunity to provide input on corrective action.

This task will be accomplished through the following sub-tasks:

3.4.1. Prepare test facility for installation of new equipment

3.4.2 Develop installation and start-up schedule for each system and associated remote monitoring equipment

3.4.3 Notify selected OWNRS and remote monitoring manufacturers of installation and start-up schedule
3.4.4 Install and start-up treatment systems
3.4.5 Monitor system performance to determine start-up period and process stability prior to testing phase

3.5. Conduct testing and evaluation phase

Once the OWNRS have stabilized, the testing and evaluation of the units by FKAA will begin. Testing and monitoring will be conducted according to the plans developed in Tasks 3.1 and 3.2 and will include the following sub-tasks:

3.5.1 Flow monitoring and adjustment
3.5.2 Sample collection and analyses
3.5.2.1 Routine parameters
3.5.2.2 Microbiological parameters
3.5.3 Logging of operational requirements by system
3.5.3.1 Labor
3.5.3.2 Energy
3.5.3.3 Chemicals, other expendables
3.5.4 Logging of maintenance requirements by system
3.5.4.1 Labor
3.5.4.2 Materials
3.5.5 Evaluation of remote monitoring equipment

3.6. Data summary and analyses

The data from Task 3.5 will be assembled and input to a spreadsheet or database program for analyses, summary, and graphical display. This task will consist of the following sub-tasks:

3.6.1 Assemble data into categories for input
3.6.2 Input data into appropriate spreadsheet or database program
3.6.3 Analyze data with respect to time
3.6.4 Conduct statistical analysis for mean, range, standard deviation
3.6.5 Develop summary tables from analyzed data
3.6.6 Develop graphical displays of data summaries

3.7. Prepare technical memorandum

A technical memorandum will be prepared summarizing this phase of the project. The memo will include the following elements:

- Summary of OWNRS testing objectives

- Description of OWNRS test facility and operational plan and procedures
- Selection and description of treatment technologies and remote monitoring equipment tested
- Materials and methods of investigation
- Data collection and sampling QA/QC procedures
- Results of OWNRS evaluations
- Summary and conclusions
- Recommendations for FKAA management of OWNRS

5.4 PHASE 4: DWTS Demonstration Project Implementation

This phase of the project will evaluate the management structure, treatment technologies, and remote monitoring strategies developed in the earlier phases of the project. To accomplish this, the results of Phases 1 – 3 will be implemented in a study area in North Key Largo. Approximately 115 existing OWTS will be upgraded with OWNRS and managed by FKAA utilizing techniques developed in this project. This phase of the project will form the basis of future management of all DWTS in the Keys by FKAA. The following tasks will be completed as part of this phase:

4.1. Identify existing systems in North Key Largo for replacement

All existing onsite systems in the North Key Largo study area will be identified in this task. Data on system type, construction date, size, and location of systems will be collected as available.

4.2. Evaluate clustering options and potential treatment facility sites

The potential for cluster systems will be evaluated based on the evaluation and data collected in task 4.1. Both shared (1 to 4 homes) and sewered (> 5 homes) type cluster arrangements will be considered in the analyses. For the shared systems, a preliminary investigation of system location options will be considered. For the sewered systems, potential treatment facility sites will be identified and evaluated.

4.3. Estimate design flows

Based on FKAA water use records, wastewater design flows will be estimated for each individual system and the identified cluster treatment options. Peaking factors will be established for each system type for design.

4.4. Prepare DWTS design and specifications

Based on the information developed in previous tasks and phases, the design and specifications for individual OWNRS or cluster systems will be completed according to the applicable FDOH, FDEP or Monroe County Codes and ordinances.

4.5. Prepare remote monitoring and management system design and specifications

The results of Phase 2 and 3 will be used to identify the remote monitoring equipment to be installed for the implementation phase. Each of the three levels of remote monitoring will be evaluated at the North Key Largo study site. Three to five OWNRS will be instrumented at each level; low, moderate, and high levels of remote monitoring.

The design and specifications for each of these systems will be developed under this task.

4.6. Prepare construction documents and obtain permits

Final construction documents will be prepared for each system, whether individual OWNRS or cluster system. Plans and specifications will be developed for bidding either together or separately, as desired by FKAA. Based on the completed construction documents, permits for each system will be applied for independently.

4.7. Bidding of project

FKAA will let bids on the project(s) under their normal bidding procedures.

4.8. Construct systems

Construction contracts will be developed between FKAA and the selected contractor(s). Construction of the OWNRS will be administered by FKAA under their normal procedures.

4.9. Conduct system monitoring and data collection

A monitoring plan will be developed for the OWNRS retrofitted in the North Key Largo study area. This plan will be less rigorous than the testing at the Big Pine Facility, and will form the basis of FKAA monitoring of DWTS under the management framework developed in Phase 1 of the demonstration project.

4.10. Prepare draft and final report of the project

A draft and final report will be prepared for the entire demonstration project, including the North Key Largo implementation phase. The report will consist of summaries of each phase of the project, and an overall summary of the entire project. The detailed results of each phase will be included as appendices to the final report.

6.0 PROJECT BUDGET AND SCHEDULE

6.1 Project Budget

6.2 Project Schedule

7.0 REFERENCES

Florida Geological Survey, 1992. Florida's Ground Water Quality Monitoring Program: Background Hydrogeochemistry. Special Publication No. 34, Florida Department of Natural Resources, Tallahassee, Florida.

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Ciotoli and Wiswall, 1982. Management of Onsite and Small Community Wastewater Systems. Report to the US. Environmental Protection Agency, Municipal Environmental Research Laboratory, Cincinnati, Ohio.

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Orenco Effluent Sewers & Packed Bed Treatment

Introduction to Collection & Treatment Options For KLWTD

Decentralized Wastewater Management (DWM)

The collection, treatment, and disposal/reuse of wastewater from individual homes, clusters of homes, isolated communities, industries, or institutional facilities, as well as portions of existing communities at or near the point of waste generation. (Tchoanoglous 1998)

Centralized Wastewater Management (CWM)

Consists of conventional or alternative wastewater collections systems (sewers), centralized treatment plants, and disposal/reuse of the treated effluent, usually far from the point of origin (Tchoanoglous 1998)

Orenco Systems, Inc

- Moved to 23-acre headquarters site in Sutherlin, OR in 1994
- Over 200 people employed
- 100 Distributors and Dealers
- Distributed in U.S., Canada, parts of Europe, and New Zealand
- Products and systems installed worldwide
- Products patented and utilized in both centralized and decentralized systems.

WASTEWATER COLLECTION

Septic Tank Effluent Pumping (STEP)

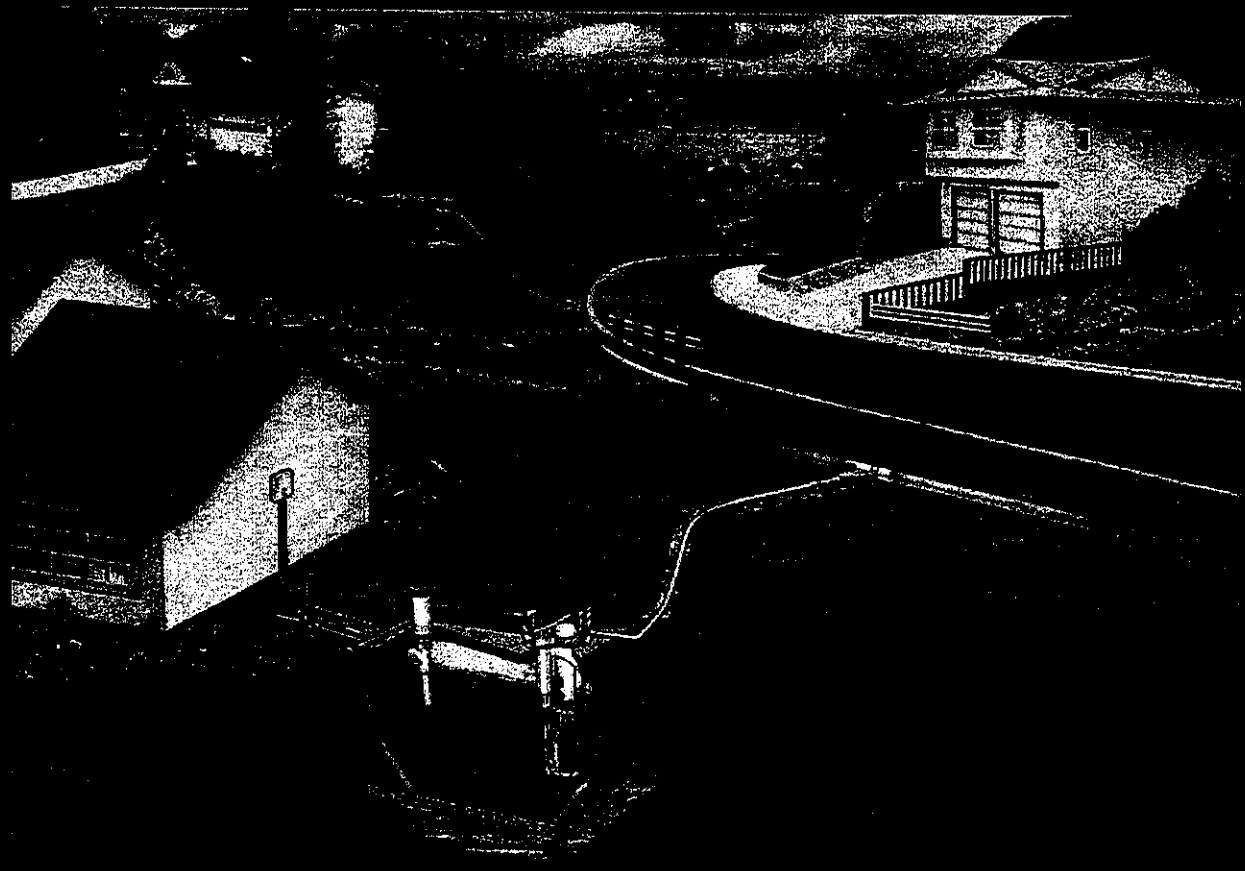
Effluent Sewers in the United States

Blue = States with effluent sewers
Yellow = States with no known effluent sewers

2004: Effluent sewers can be found in nearly every state of the US.

Orenco Effluent Sewer Collection Technology

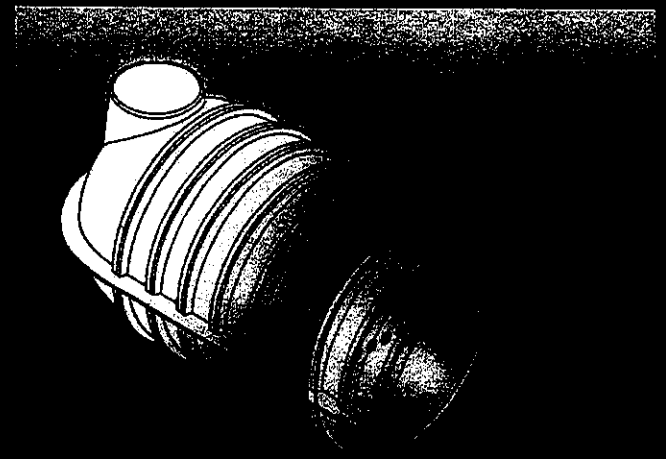
Septic Tank Effluent Pumping (STEP)



Orenco Effluent Sewer Components

Fiberglass Reinforced Tanks

- Primary treatment in interceptor tanks
- 1000- or 1500-gallon tank per residence
- 90% removal of fats, oils, and greases
- 24-hour emergency storage
- 12-year pumpout with 95% confidence
- Abuses stay in interceptor tank
- Chemical sources easier to identify

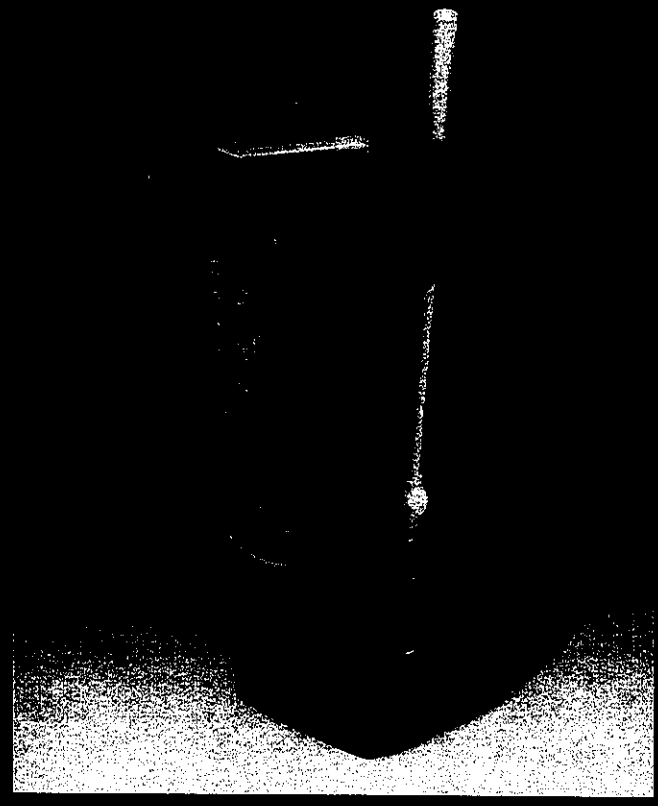


Orenco Effluent Sewer Components, cont.

PreSTEP™ Pumping Package

- An engineered package with two major components:
  - ~ High-head effluent pump (25 year life cycle & less than $500.00/pump)
  - ~ Biotube® filter cartridge (> 100 ft² of surface area)

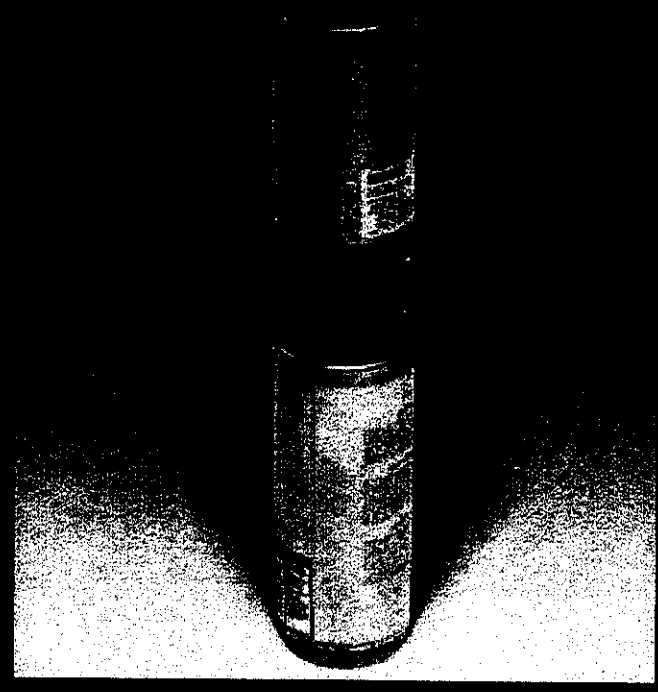
This unit is designed for easy access and service.



Orenco Effluent Sewer Components, cont.

High-Head Effluent Pump

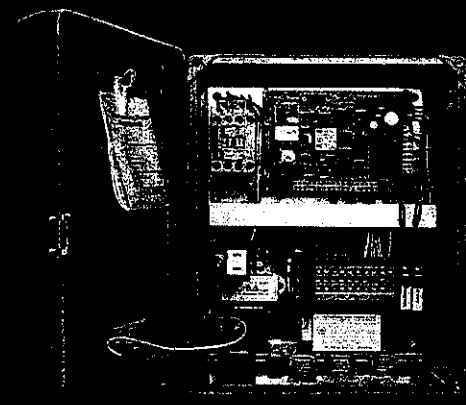
- Non-corroding stainless steel
- Typically 115V
- Lightweight; under 30 pounds
- Long life; 20-30 years



Orenco Effluent Sewer Components, cont.

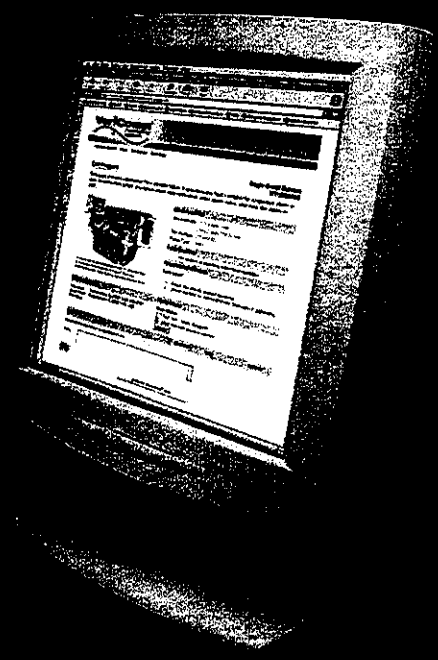
VeriComm® Control Panels

- VeriComm allows for 24/7 coverage with remote monitoring
- Operation and maintenance is simplified
- Standard panel without telemetry is available

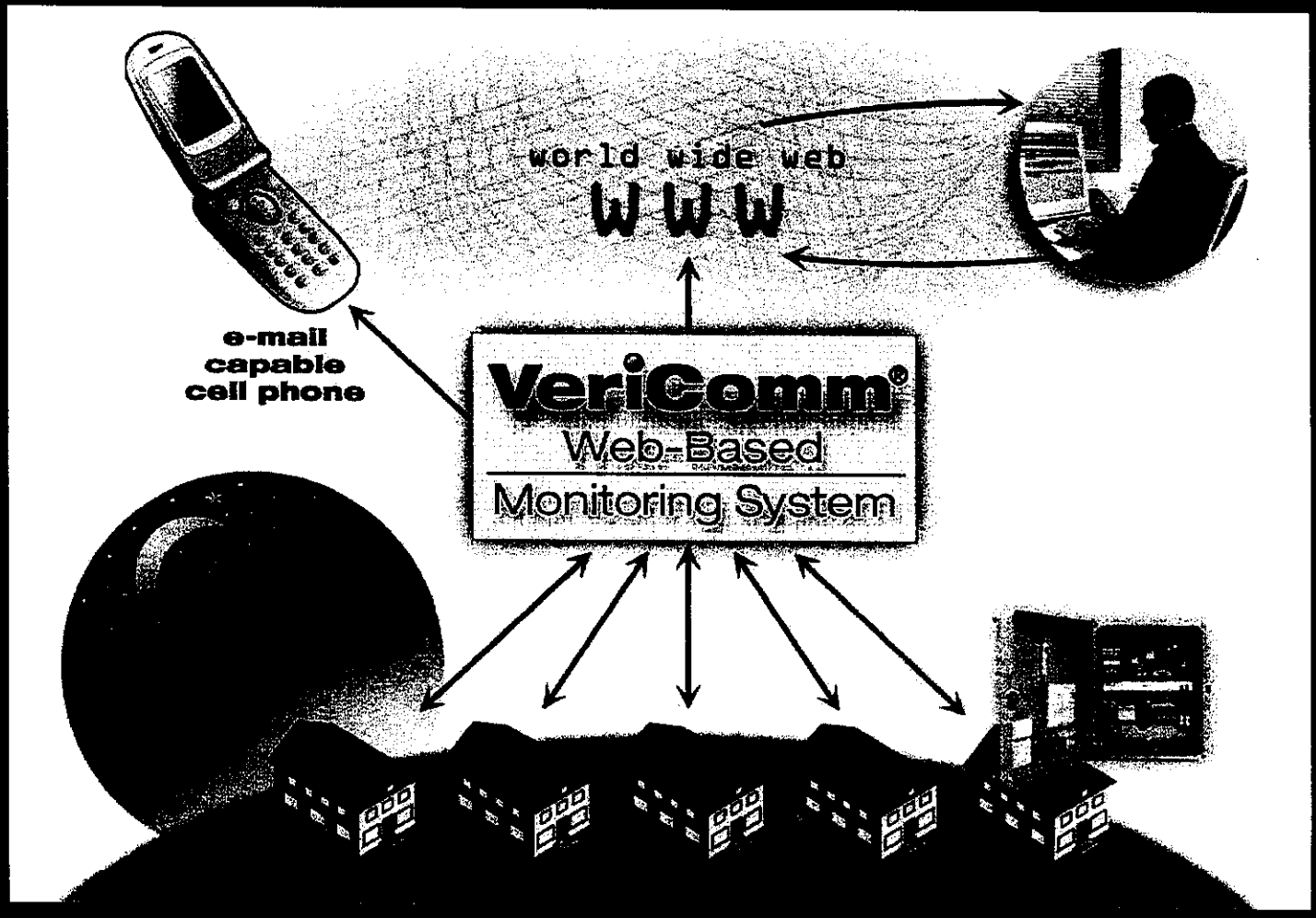


What is Telemetry Control?

- A VeriComm® control panel with ...
  - ~ Advanced logic
  - ~ Reduced O&M costs
  - ~ 24/7 coverage
  - ~ Automatic operator notification



Web-based Telemetry



Effluent Sewers are Easy to Maintain

- 25 years of documented system performance (beginning with Glide, OR)
- Annual service calls
  - ~ Only 4/year, total, for 100 connections (Elkton, OR)
- Negligible power costs ($1/month)
- Tank pumpout intervals of 10-12 years

Note: There are a lot of STEP systems that are not Orenco. Be careful who's numbers you use!!

Orenco Effluent Sewer Collection System Advantages

- Shallow burial depth (No dewatering & cost effective)
- Small pipe diameters (Easy installation)
- No minimum velocities
- No critical pipe grades (Simple installation)
- Low operation and maintenance costs
- Flexible
- Low impact & low restoration

Orenco Effluent Sewer Collection System Advantages (Continued)

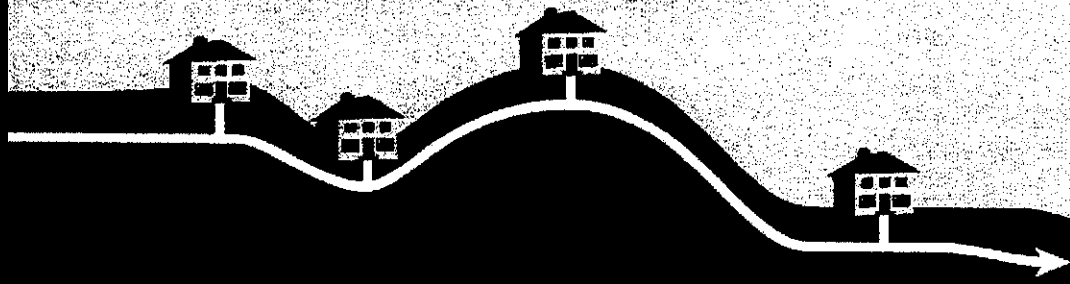
- Primary treatment (70-90% waste strength reduction)
- Biosolids Reduction
- Directional boring can be used extensively
- Long pumping distances (Up to 7 miles)
- No I&I
- System storage
- Low risk construction (no change orders)
- No lift stations

Orenco Effluent Sewer Collection System Advantages (Continued)

- Low long term R&R costs (indexed to rate structure)
- No heavy equipment for maintenance and operations
- Quick & easy repair
- No overflows
- Lifetime manufacture support
- Can utilize other manufactures for parts (we don't recommend it but the threat keeps our pricing honest)

System Comparison, cont.

Effluent Sewer System

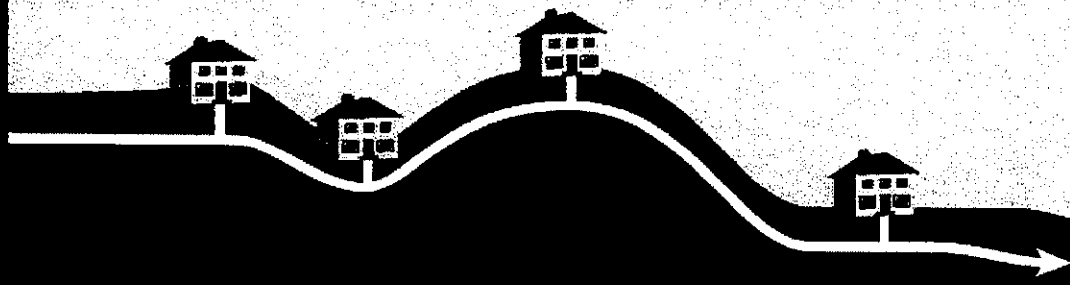


Influent (average)

Flow: 50 gpd/person
BOD_5: 140 mg/L
TSS: 30 mg/L
FOG: 20 mg/L

AdvanTex® Treatment System

Grinder Sewer System

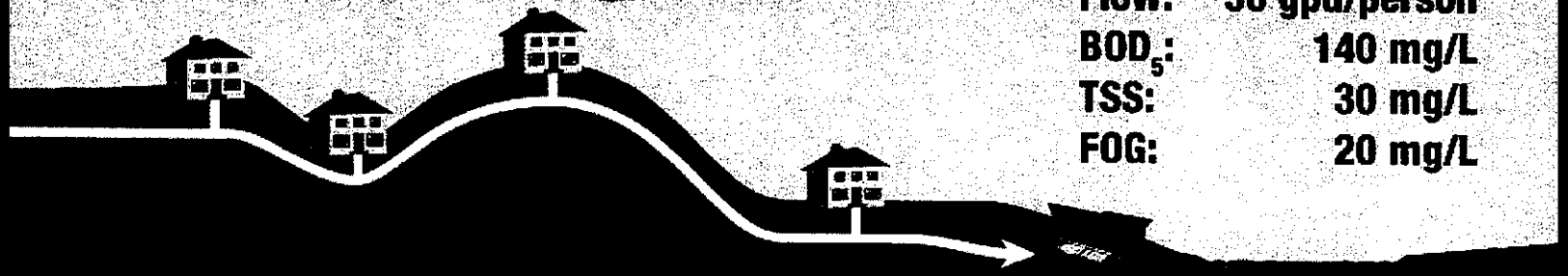


Flow: 50 gpd/person
BOD_5: 450 mg/L
TSS: 503 mg/L
FOG: 164 mg/L

Small and Decentralized Wastewater Management Systems, Crites/Tchobanoglous, tables 4-12 and 4-16

System Comparison, cont.

Effluent Sewer System



Influent (average)

Flow:	50 gpd/person
BOD_5:	140 mg/L
TSS:	30 mg/L
FOG:	20 mg/L

AdvanTex® Treatment System

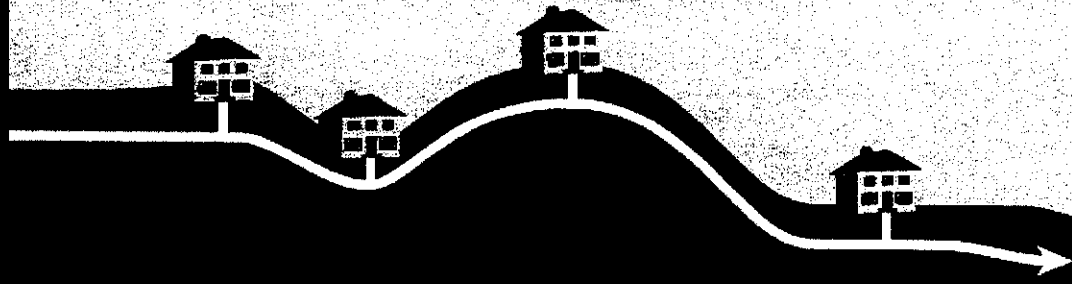
Vacuum Sewer System

Flow:	50 gpd/person
BOD_5:	450 mg/L
TSS:	503 mg/L
FOG:	164 mg/L

Small and Decentralized Wastewater Management Systems, Crites/Tchobanoglous, tables 4-12 and 4-16

System Comparison

Effluent Sewer System

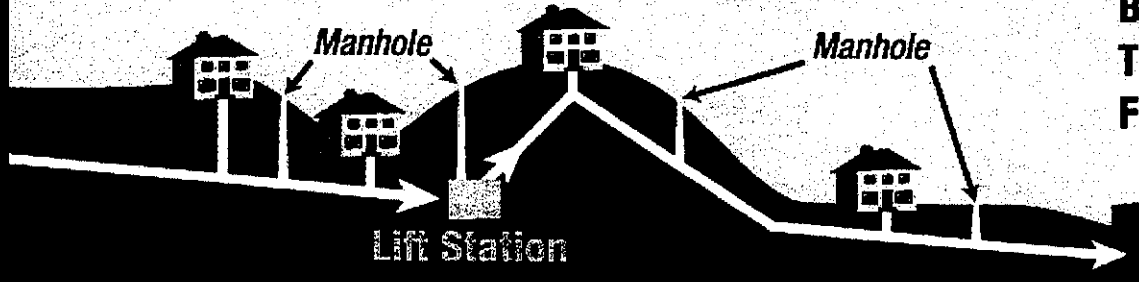


Influent (average)

Flow:	**50 gpd/person**
BOD_5:	**140 mg/L**
TSS:	**30 mg/L**
FOG:	**20 mg/L**

AdvanTex® Treatment System

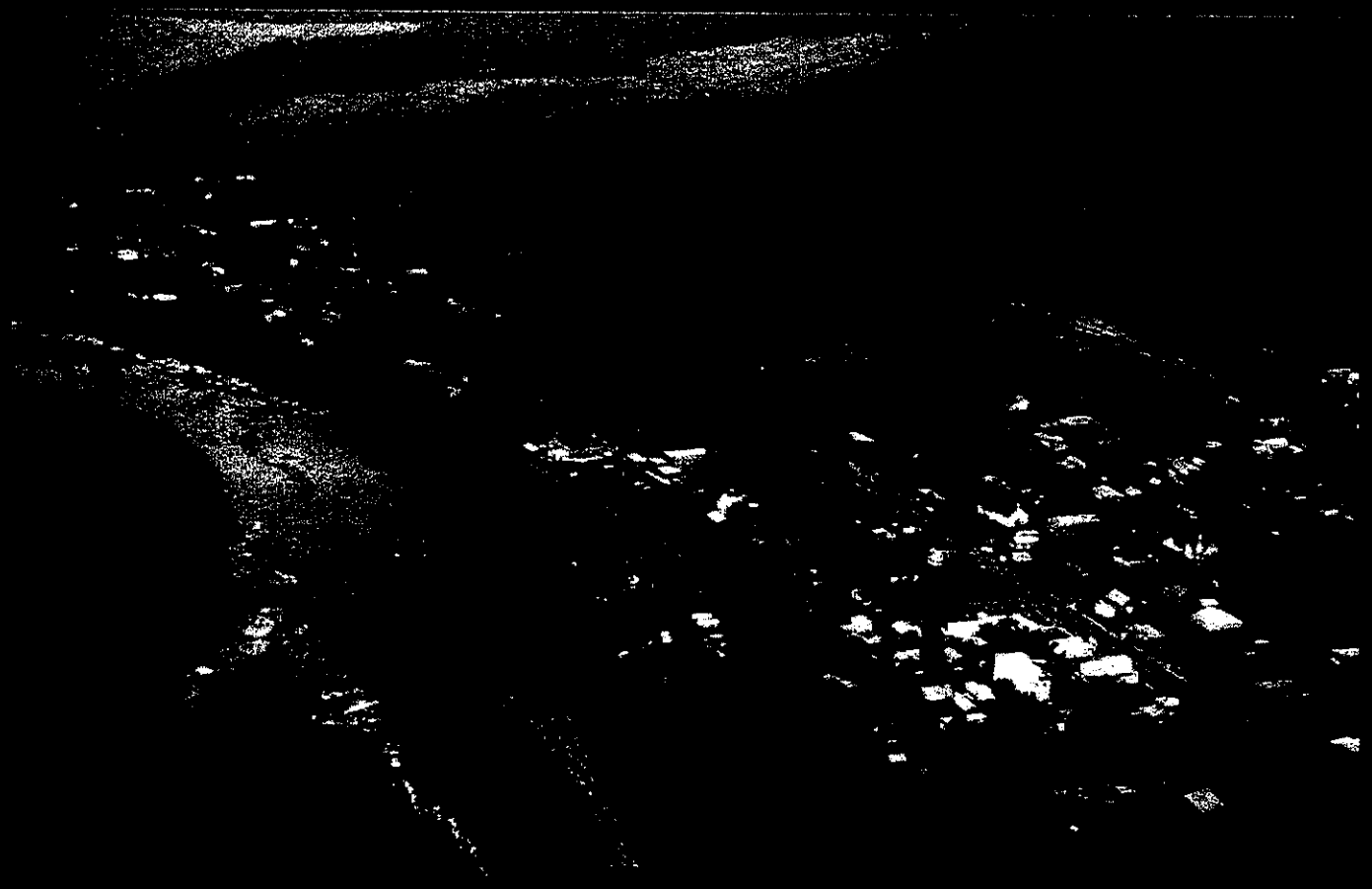
Conventional Gravity System



Flow:	**120 gpd/person**
BOD_5:	**187 mg/L**
TSS:	**209 mg/L**
FOG:	**68 mg/L**

Small and Decentralized Wastewater Management Systems, Crites/Tchobanoglous, tables 4-12 and 4-16

Elkton, Oregon Special Sewer District
STEP Collection to Backed Bed Treatment



Elkton System Overview

- Installed in 1989
- 135 EDUs (average 17,000 gpd)
  - ~ 2" and 3" mainlines
  - ~ Annual service calls: 4 per year in first 11 years
  - ~ RSF treatment w/drainfield dispersal (design: 29,000 gpd)
- First residential tank pumped in 2000

Project Costs

- Total project cost: $897,800
  - Includes design and installation of collection, treatment, and dispersal
- $6,700 per EDU
- 71% grant funded
- 29% loan funded

Elkton Residential Service Calls

Year	Service Calls	No Problem Found
1989	0	--
1990	4	n/a
1991	1	n/a
1992	1	n/a
1993	2	n/a
1994	0	--
1995	4	n/a
1996*	14	n/a
1997	0	--
1998	6	2
1999	10	5
2000	6	3

** Heavy flooding*

Average annual service calls = 4

Residential Service Calls

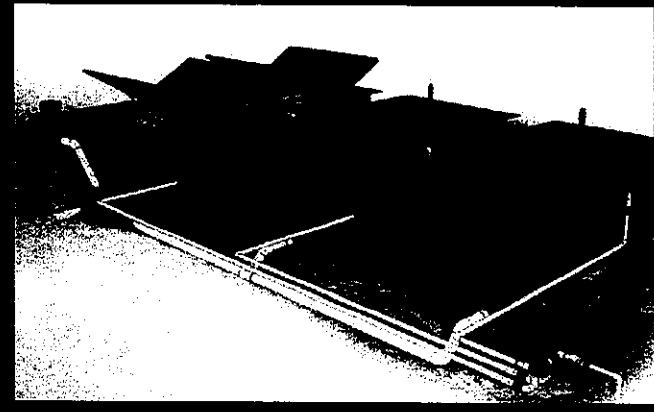
State	STEP System	EDUs	Screened	Hrs/mo./100EDUs
CA	Mt. Lake Estate	8	yes	1.0
CA	Villa Verona	337	yes	2.5
MT	Missoula	350	yes	1.5
OR	Elkton	135	yes	0.7
OR	Glide	700	20%	2.0
OR	Lake Side	51	yes	0.3
OR	La Pine	215	yes	1.8
OR	Tangent	180	yes	2.5
WA	Boston Harbor	166	yes	1.6
WA	Conconnully	75	yes	0.5
WA	Diamond Lake	525	yes	1.2
				Ave. Annual 1.4

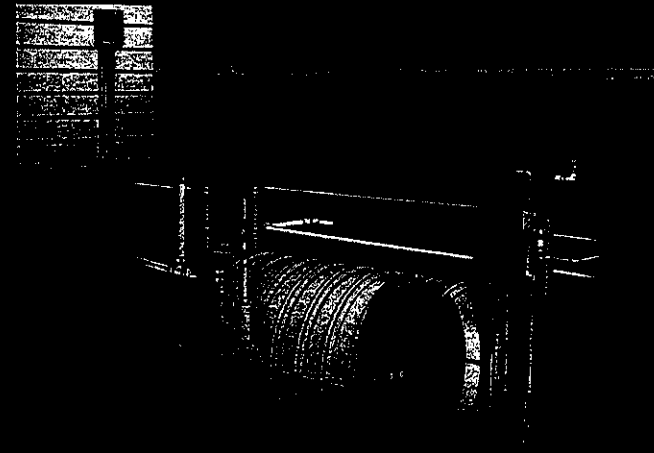
WASTEWATER TREATMENT

AdvanTex© Packed Bed Filter

Advanced Treatment Systems

- A variety of packed bed filters
  - ~ AdvanTex® textile treatment systems
  - ~ Intermittent sand filters
  - ~ Recirculating gravel filters





Packed Bed Filter Treatment Technology

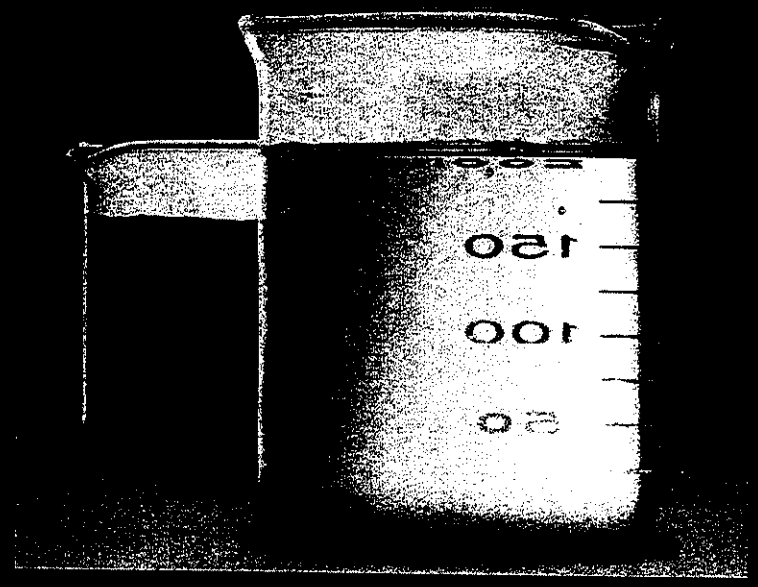
- Uses a fixed film medium (textile, sand, peat)
- Operates in an unsaturated condition (not submerged)
- Employs intermittent dosing
- Uses filtration and biological/chemical reduction

Packed Bed Filters Are . . .

- Economical
  - ~ Low power consumption (less than $4/month)
- Reliable
  - ~ Consistent, high-quality effluent
  - ~ No release of untreated sewage
- Sustainable
  - ~ Low maintenance

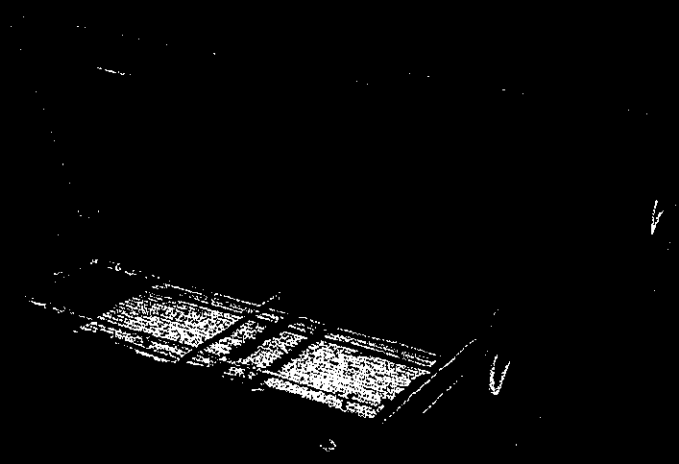
Manufacturer's (Orenco's) Responsibilities

- High-quality, warranted products with documented, third-party performance results:
  - ~ $cBOD_5$ and TSS of 5 mg/L or less
  - ~ Significant (60-70%+) nitrogen reduction, depending on mode and influent
  - ~ Additional nitrogen reduction and phosphorus reduction with add-on modules



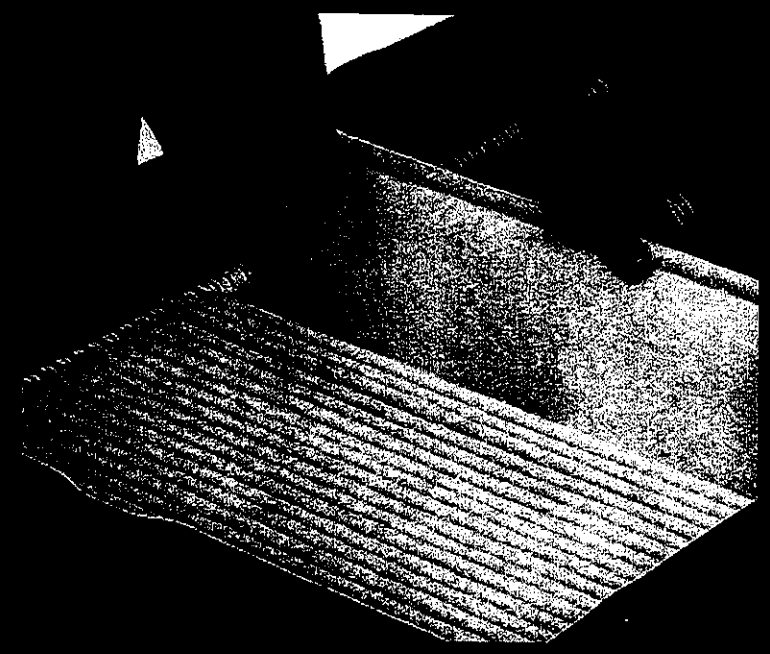
Commercial AdvanTex – AX100

- Physical specifications
  - ~ 16' x 8' x 3.5'
  - ~ Footprint: ~128 sq. ft.
  - ~ Dry weight: ~1650 lbs.
- Treatment Capacity
  - ~ 5000 gpd Design Flow



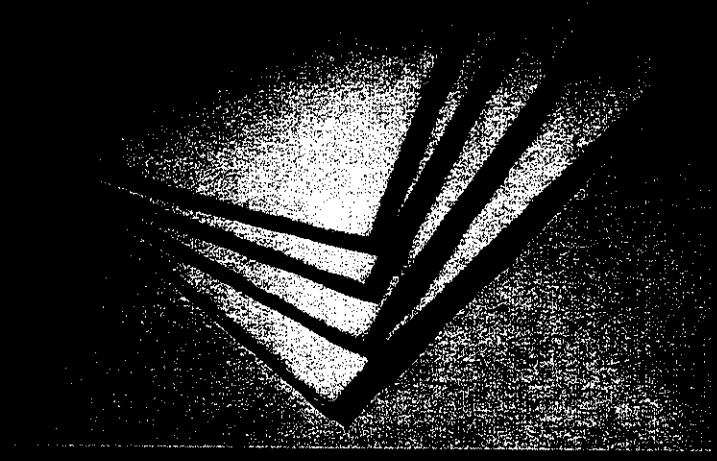
AX Series

- Uses hanging textile sheets
- Can withstand occasional abnormally high loading conditions
- Has outstanding serviceability



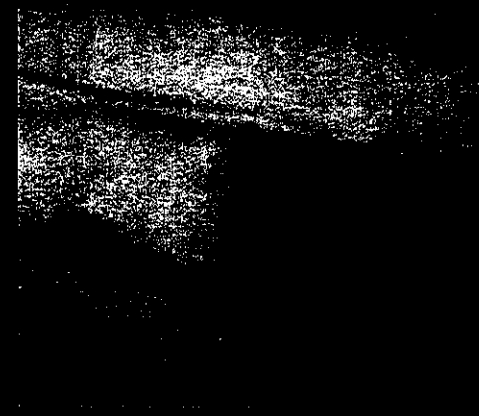
AdvanTex® Treatment Systems Are ...

- Designed from a thorough understanding of Wastewater Treatment (WWT) science and practices
- Engineered with a superior medium for WWT: textile



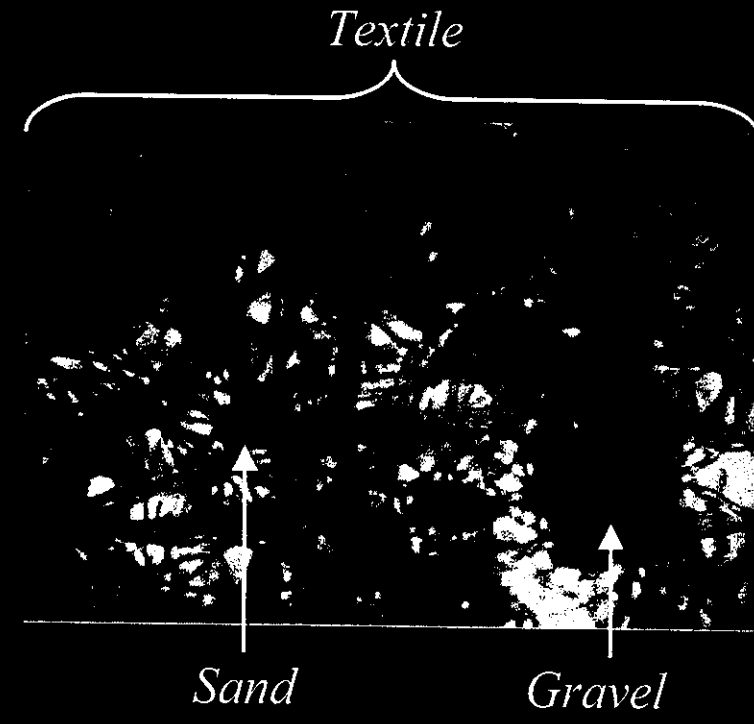
Textile is a More Stable PBF Media

- Doesn't compact like foam
- Doesn't vary in quality like sand
- Doesn't decompose like peat



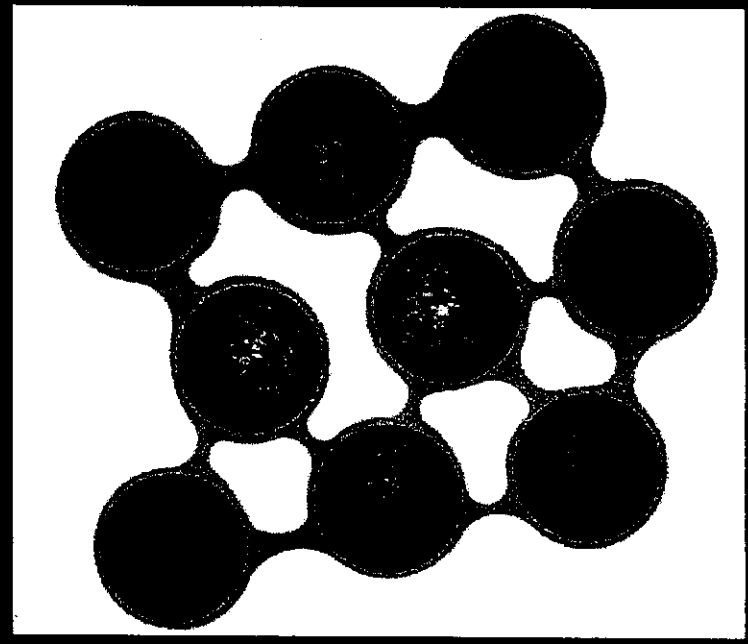
Textile Offers Greater Surface Area

- Textile is specifically engineered for WWT
- Textile has 5-20 times more surface area than sand (ft^2 per ft^3 of material)
- The more surface area, the more area for bacterial colonization



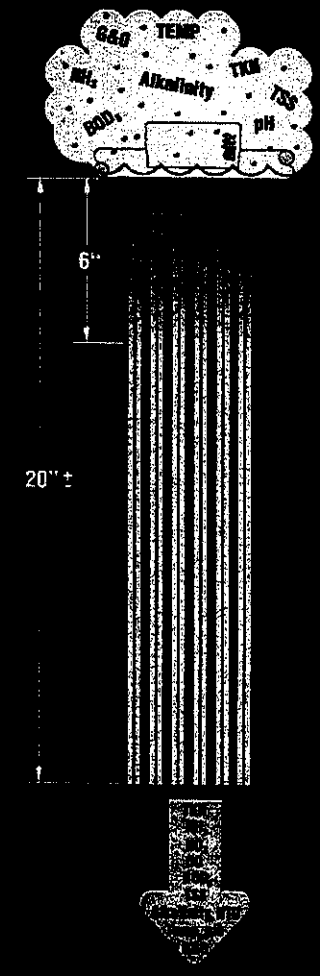
Attached Growth

- Aerobic microbes attach and grow on media
- Wastewater flows across a zoogleal film created by microbes
- Microbes extract and digest soluble organic matter from the wastewater



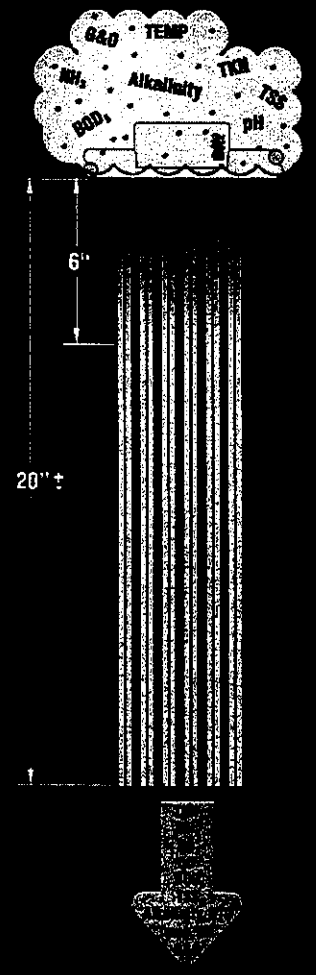
Packed Bed Filter Biofilms

- At the surface and within the top 6 inches±, matter is trapped and the greatest biofilm accumulation occurs
- The top zone is mostly responsible for solids and organic reduction
- Heterotrophic bacteria are primarily responsible for reducing organic matter

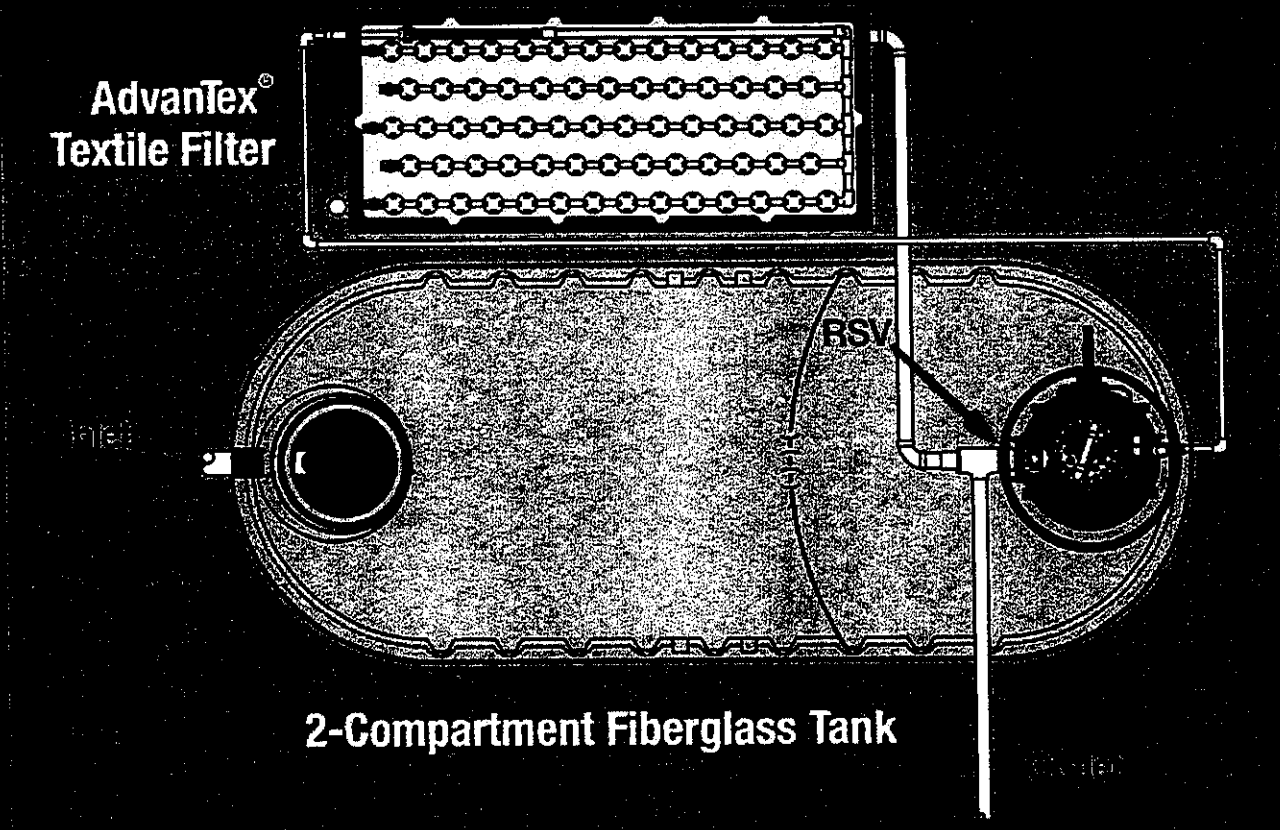


Packed Bed Filter Biofilms, cont.

- Oxygen is diffused from the air that fills the unsaturated voids into the effluent and biofilms
- After the carbonaceous demand is met in the upper levels of the media, autotrophic bacteria reduce inorganic constituents (such as ammonia) through nitrification (the conversion of ammonia to nitrate) in the lower region of the media

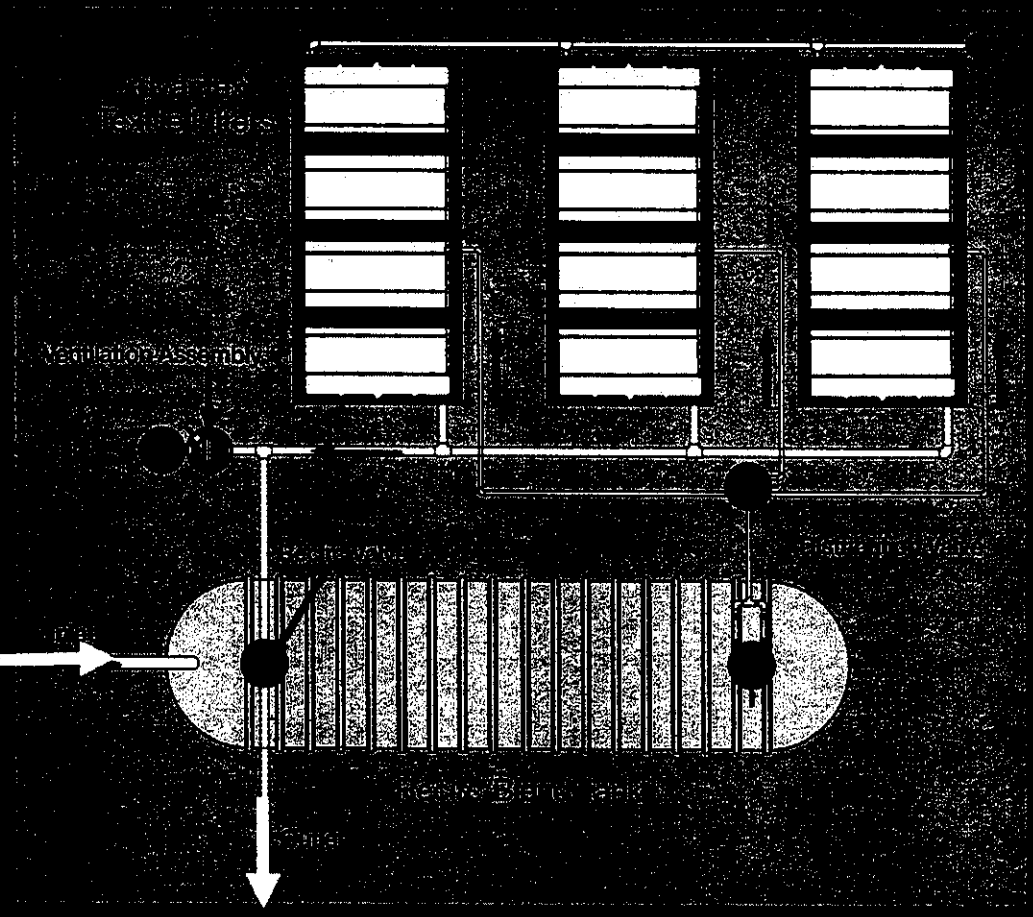


Standard Configuration

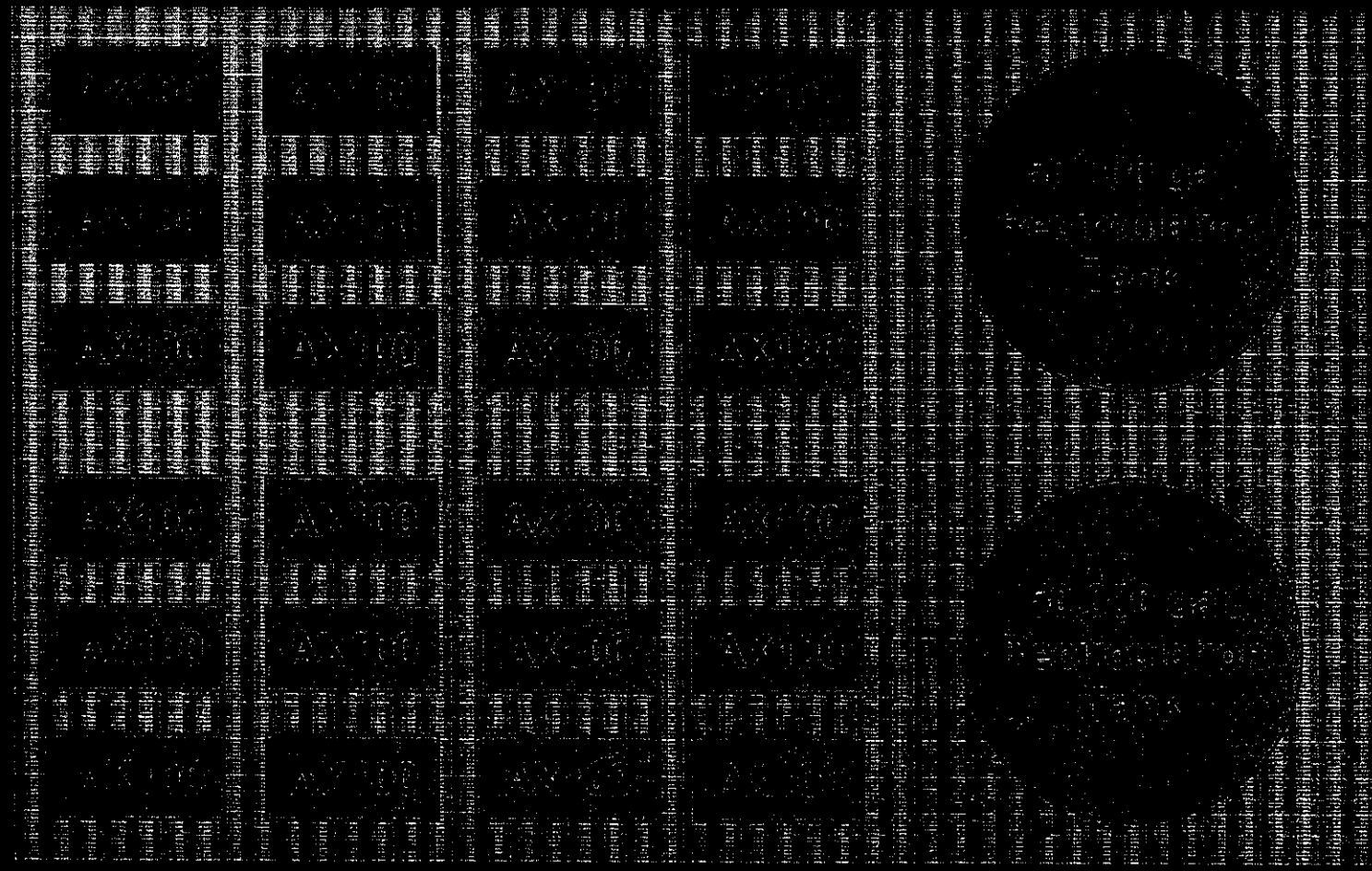


Recirculates through 2nd chamber: Filtrate discharge

Typical Unit Configuration 15,000 gpd Capacity



120,000 gpd Treatment Facility -- 10,400 sq. ft.



Small Communities
Bethel Heights, Arkansas

- 72,000 gpd design
- STEP collection for 225 homes
- 18 AdvanTex® AX100 pods
- Subsurface drip dispersal
- Start-up: 12/2003
- Avg effluent characteristics:
  - ~ BOD_5: 2.5 mg/L
  - ~ TSS: 3.5 mg/L

Considerations Within a Wastewater Program

Opportunities for use

- Single houses
- Clustered houses (2 to several hundred)
- Collection for centralized systems
  - ~ Across bridges and up to 7 miles
  - ~ Low density areas

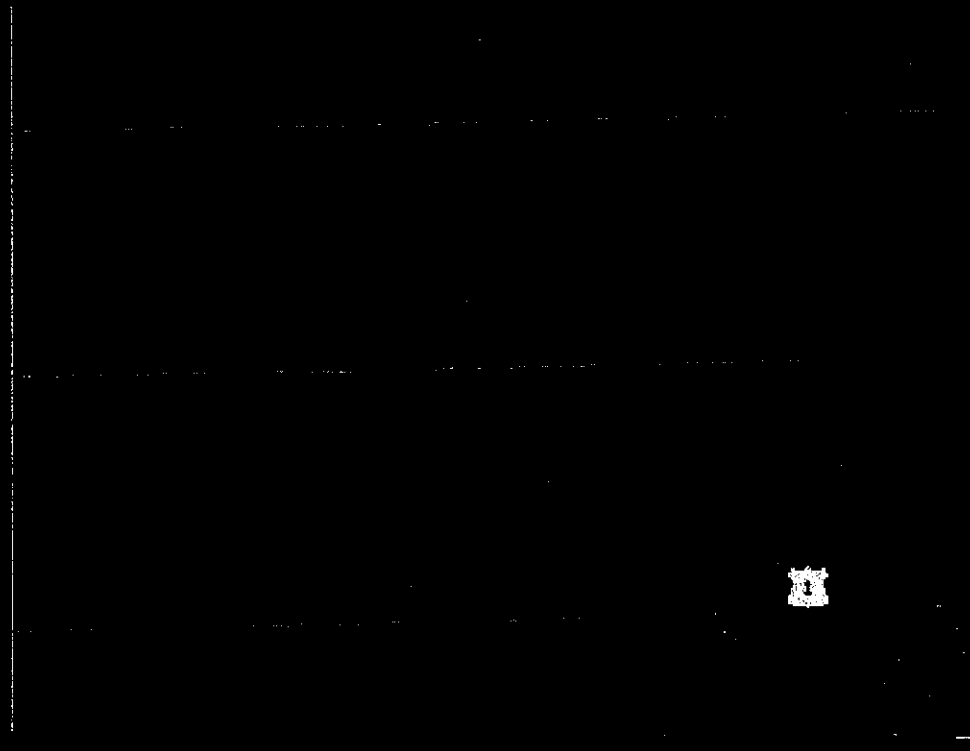
Example - Single Residence

- In this example an on-site treatment system could be provided to a single residence to avoid costs associated with collection mains and off-site treatment.

Example - Isolated Area/Low Density

- In this example collection main could be constructed at a low cost to a community treatment system (Approx 40,000 gpd). Saves extensive cost in force mains, lift stations and energy.

Example - Low density

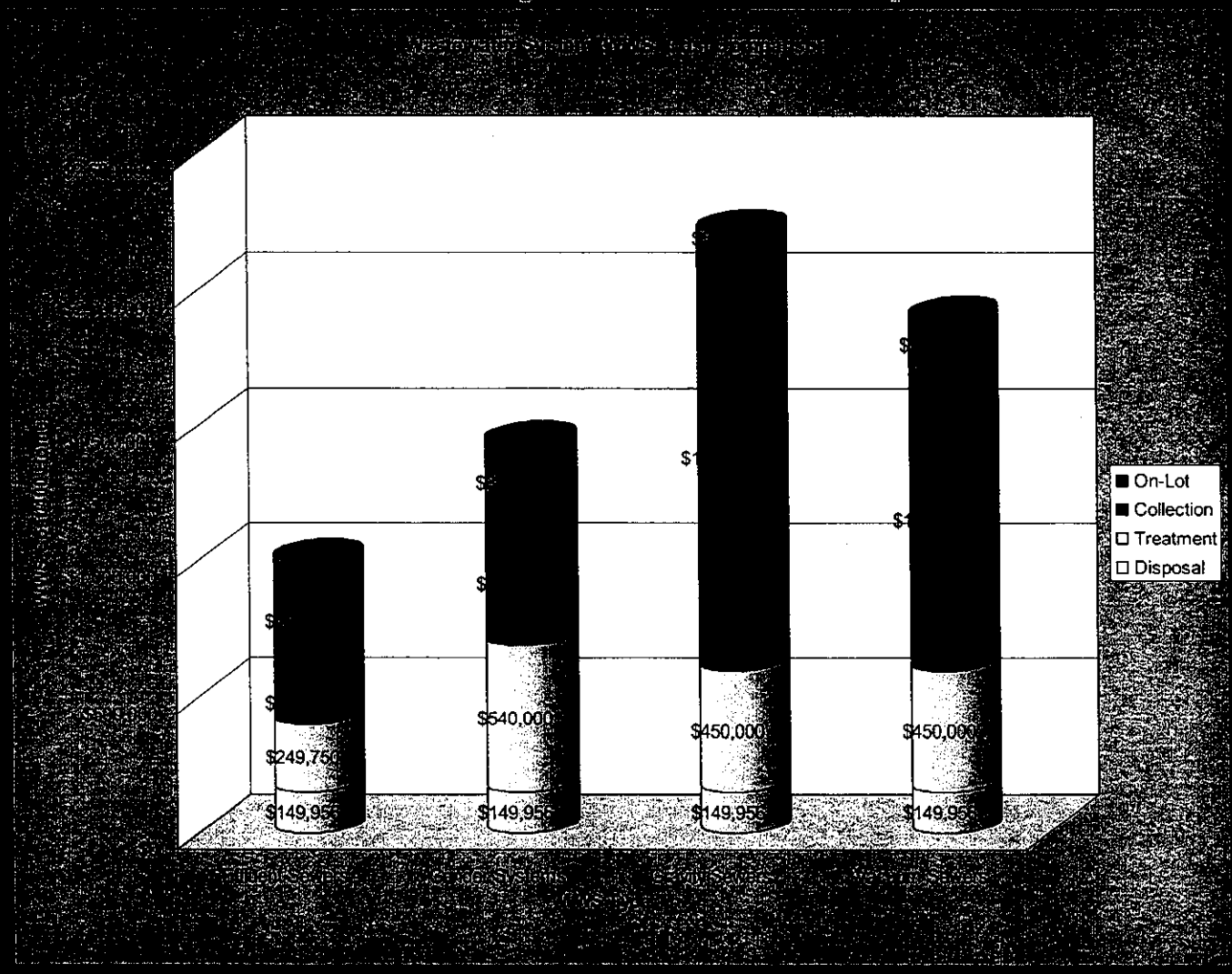


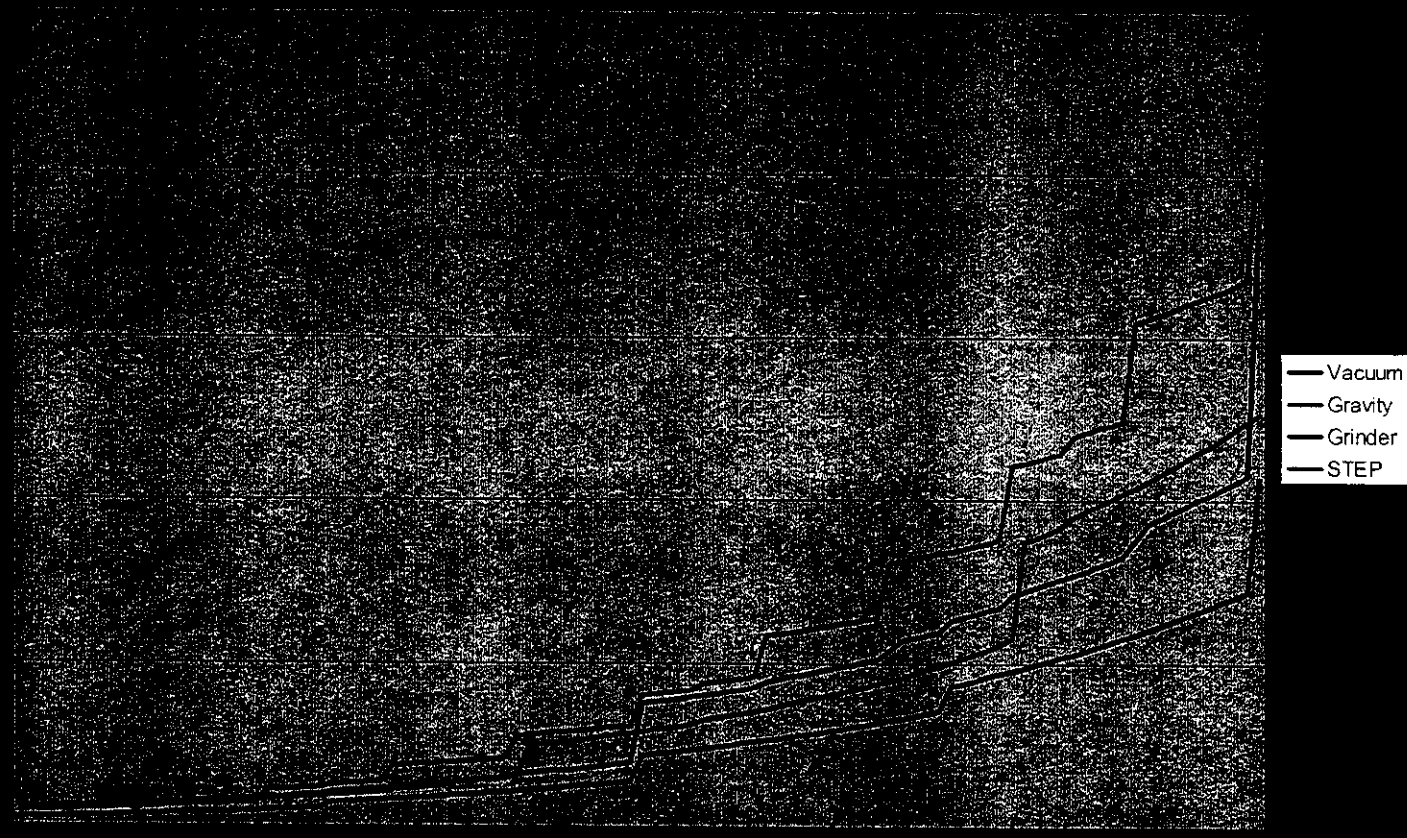
- In this example a STEP collection system can be utilized with discharge to a centralized treatment system. Savings will be realized because a large portion of costs would not be expended until houses are built on vacant property.

Typical Costs

- Single Residence - $15,000-$20,000/Intallation
- Clustered Collection & Treatment - $8,000-$12,000/Residence
- STEP Collection to Centralized Treatment - $4500-$7,000/Residence
- On-site treatment O&M - $225.00/yr per installation
- Collection system O&M cost - $100.00/yr per residence.
- AdvanTex Treatment ($1.00-$1.50/1000 gallons)

Wastewater System Comparison




Vacuum
Gravity
Grinder
STEP

The EPA Supports Effluent Sewers

- In 1997, the EPA submitted a *Response to Congress on Use of Decentralized Wastewater Treatment Systems*

- Here's an excerpt from the EPA's *Executive Summary*:

Adequately managed decentralized wastewater systems are a cost-effective and long-term option for meeting public health and water quality goals ...

Questions?

Orenco Systems®, Inc.

www.orenco.com

KEY LARGO WASTEWATER TREATMENT DISTRICT
Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 10

[ ]	PUBLIC HEARING	[ ]	RESOLUTION
[X]	DISCUSSION	[ ]	BID/RFP AWARD
[ ]	GENERAL APPROVAL OF ITEM	[ ]	CONSENT AGENDA
[ ]	Other:		

SUBJECT: Lake Surprise/Sexton Cove Update.

RECOMMENDED MOTION/ACTION: Discussion

Approved by General Manager C.J.L.
Date: 4-29-05

Originating Department: General Manager	Costs: $ Funding Source: Acct. #	**Attachments:**
Department Review: [ ] District Counsel _____ [X] General Manager C.J.L. [ ] Finance _____	[ ] Engineering_____ [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: Staff is meeting with the County Commissioners to present the Sexton Cove project. Work authorization proposals for the Sexton Cove project have been received from the selected Engineering Firms and are being reviewed.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised

KEY LARGO WASTEWATER TREATMENT DISTRICT

Agenda Request Form

Meeting Date: May 4, 2005 Agenda Item No. 11

[ ] PUBLIC HEARING [ ] RESOLUTION

[X] DISCUSSION [ ] BID/RFP AWARD

[ ] ACTION ITEM [ ] CONSENT AGENDA

[ ] Other:

SUBJECT: Airvac Change Order

RECOMMENDED MOTION/ACTION:

Approved by General Manager _____
Date: 4-29-05

Originating Department: General Manager	Costs: $ Funding Source: KLTV, KLP & Administration Acct. 51400-1	**Attachments:**
Department Review: [ ] District Counsel _____ [X] General Manager _____ [ ] Finance _____	[ ] Engineering_____ [ ] Clerk_____	**Advertised:** Date: _____ Paper: _____ [X] Not Required
	All parties that have an interest in this agenda item must be notified of meeting date and time. The following box must be filled out to be on agenda.	Yes I have notified everyone_____ or Not applicable in this case_____: Please initial one.

Summary Explanation/Background: Detail of the costs to switch from Reovac to Airvac will be presented. The original estimate was $191,000 the cost now is approximately $130,000.

Resulting Board Action:

☐ Approved ☐ Tabled ☐ Disapproved ☐ Recommendation Revised