MEETING OF THE ORLEANS BOARD OF WATER COMMISSIONERS
May 5, 2009

A meeting of the Board of Water Commissioners was held Wednesday, May 5, 2009 in the Nauset Room, Town Hall:

Those present were Victor Noerdlinger, Robert Rich, Kenneth McKusick, Hank Schumacher and Ann Hodgkinson of the Board, Lou Briganti, Water Superintendent.

Robert Rich called the Board of Water Commissioners meeting to order at 1:00 p.m.

WIND ENERGY

John Jannell represented the Wind Energy Committee to answer questions from the Board of Water Commissioners. John Jannell informed the Board that the Committee would be submitting their final recommendations to the Board of Selectmen sometime in mid June. The committee is seeking grant money for design and construction.

Lou Briganti is looking for a site plan, as well as a rates & financial analysis if there are intensions to utilize the water department budget for any purpose related to wind energy.

Ann Hodgkinson would like the Board of Selectmen to make it clear whose project this will be. For example will it be a Town project or a Board of Water Commissioners project? She also reminded all that the watershed is to be used solely for the production of water.

OTHER BUSINESS

BIKEWAYS COMMITTEE

The Board of Water Commissioners asked Lou Briganti if he had been consulted regarding the Bikeways Committee's proposal to install a bike path from South Orleans through the watershed to Orleans center. John Jannell expects that the Bikeways Committee will request a meeting with the Board of Water Commissioners in the near future.

MINUTES

Kenneth McKusick made a motion seconded by Ann Hodgkinson to approve the minutes of the meeting of April 15, 2009 as written. The vote by the Board was 4-0-1 with Victor Noerdlinger abstaining as he was not present at the meeting.

SUPERINTENDENT'S REPORT

SEE ATTACHED REPORT

COMMITMENTS/ABATEMENTS/REFUNDS

A motion was made by Kenneth McKusick seconded by Ann Hodgkinson to commit for the month of April 2009 to rate $0.00, to services $800.00, to usage $0.00, to installations $160.00 and to added billing $143.17. The vote by the Board was 5-0-0.

A motion was made by Ann Hodgkinson seconded by Kenneth McKusick to abate $14,366.76 from usage due to meter reading errors for account #1596 which were rectified with the rates account. The vote by the Board was 5-0-0.

A motion was made by Ann Hodgkinson seconded by Kenneth McKusick to refund from installations I2005-53 $5.00 overpayment, I2007-51 $80.00 billed and paid twice in error off/on fee and I2008-14 $80.00 for invoice paid twice in error. The vote by the Board was 5-0-0.

A motion was made by Ann Hodgkinson seconded by Robert Rich to abate and refund from added billing A2009-24, A2009-25 and A2009-26 $1,305.00 and $7.20 from added billing sales tax for a repair made that was within the one-year warranty period and should not have been billed. The vote by the Board was 5-0-0.

ADJOURNMENT

At 2:18 p.m., a motion was made by Kenneth McKusick and seconded by Ann Hodgkinson to adjourn the meeting. The vote by the Board was 5-0-0.

The next regular meeting is scheduled for June 10, 2009 at 1:00 p.m.

Secretary, Board of Water Commissioners

Town of Orleans
Water Department

Lou Briganti
5/4/2009

Board of Water Commissioners

06May2009

O&M

Spring flushing began on April 16th. The program is anticipated to be completed by May 4th.

Complaints were *slim to none* and most phone calls were inquiries about scheduling.

Water quality samples were collected from select dead-ends before flushing began. High pH levels were noted. This is likely the result of Orleans being a seasonal community with reduced water use through the winter.

My current thinking is that spring flushing is justified as an effort to move water prior to the arrival of increased demand and increased coliform sampling.

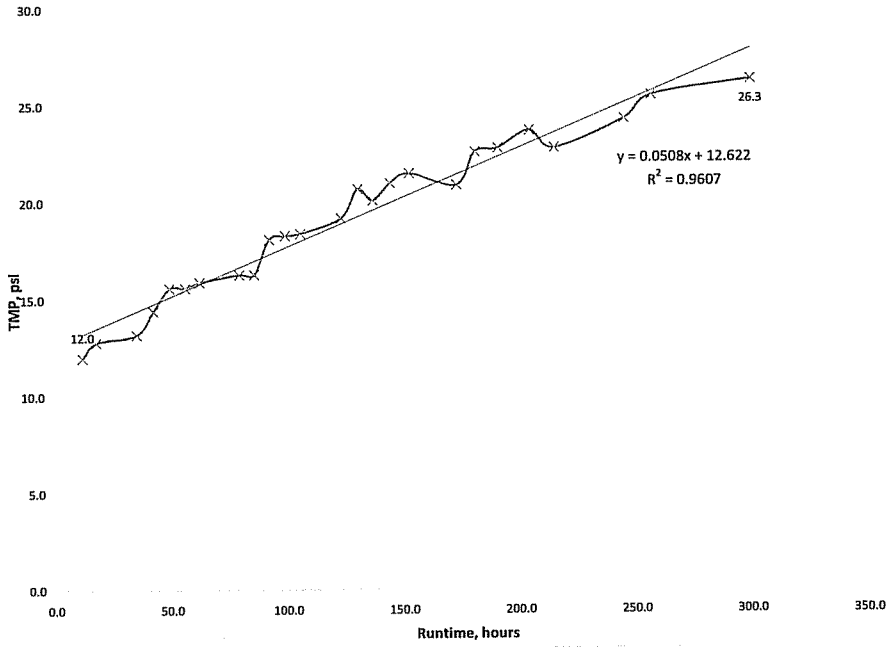
WTP

Membrane Performance / Replacement

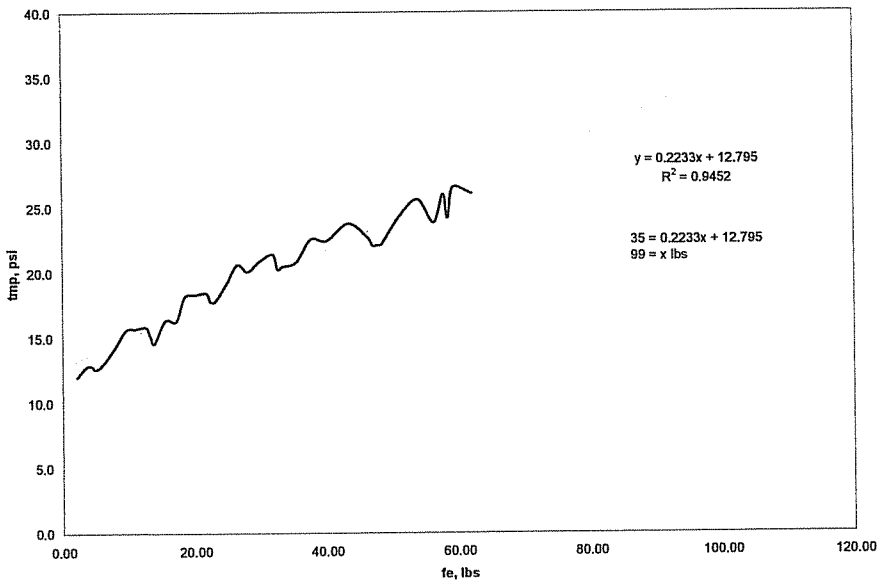
The performance test running 1-membrane rack at design flow that began on 03/19 was concluded on 04/28.

The highest TMP achieved was 26.3 psid. The position of Pall Corp. is that the TMP would need to exceed at least 35 psid. The rack operated at design flow for 47% of the 300.7 total hours and the total Iron concentration averaged 0.5 to 0.6 mg/L.

Board of Water Commissioners



Another way to look at the data is solids loading. This view indicates that filtering 99 lbs of Iron would achieve the TMP of 35 psid.



In March the aggressive CIP of rack no. 3 was completed. This is in accordance with Pall Corp.'s recommendation of an annual aggressive cleaning. A permeability of 6.24 gfd/psid was achieved. This is similar to the permeability achieved after the last aggressive cleaning in February 2008 (6.48). The difference may be indicative of some loss of filter capacity.

Pall Corp. has set a limit of 4 to 4.5 permeability after an aggressive cleaning as indicative of significant irreversible losses. Membrane replacement would be recommended.

After completing the CIP's on rack no. 3 a 1-rack test similar to that attempted in March 2008 was initiated. Aside from weekends, the plant is operated with 3-racks at the start and end of each day. The interim runtime is with rack no. 3 only. The rack is being run at design flow (1.5 MGD). This will be the last attempt to verify that the membranes meet the warranty provided by Pall Corp. The warranty is for 300 hours between chemical cleanings and 4.5 MGD.

The idea of the design flow performance test may never rise to the level of a claim, but it will be part of negotiating the price of replacement membranes. A conference call was held with Stephen Olson, Environmental Partners Group and Lance Benjamin, Pall Corp. on April 30th.

The following email summarizes the conversation and the status of the work;

From: Louis Briganti
Sent: Thursday, April 30, 2009 2:03 PM
To: 'Lance_Benjamin@pall.com'
Cc: Bill_Bennett@pall.com; Bob_Cundall@pall.com; Dave_Glovinsky@pall.com; Jesse_Campbell@pall.com; Karl_Britt@pall.com; Mike_Petrucco@pall.com; Mike_Poole@pall.com; Patricia_Owen@pall.com; sco@envpartners.com; Steve_Watson@pall.com
Subject: RE: 2009.04.21.Orleans.2009_1 Rack Test

Lance,
Thanks for taking the time for the conference call this morning. It was helpful and your input is always appreciated.

To summarize the results;
1. Orleans will plan on doing a design flow test in July or August.
2. Pall Corp. will provide the test parameters by the end of May.
3. You will request that Pall Corp. assign a Project Manager to the Orleans account.
4. Pall Corp. is aware that I have begun the process to replace the membranes in the Orleans facility. I am requesting the assistance of Pall Corp. in converting from UF to MF. This includes avoidance of the potential requirement of a pilot study by MA DEP.

Town of Orleans
Water Department

Lou Briganti
5/4/2009

Board of Water Commissioners

To be quite honest and clear:
Having operated the Orleans facility for 4+ years I do not believe there has been strong clarity for when a CIP was called for. We have basically operated with a limit of 20 psid TMP. That being said, I do not believe our membranes ever met the warranty provided by Pall Corp. I think our hard efforts to make the plant work and the less than expected iron concentration have masked that fact.

I suspect that the performance of our membranes is rooted in solids loading. The data I submitted from the design flow operation in March and April indicates that 95 to 99 lbs. of Iron will result in 35 psid TMP.

The reason that I think it is important to test the warranty is to insure that we can make a smooth transition to new membranes. I am hopeful for clear cut operating guidelines and performance expectations.

I remain optimistic that a good facility can be made better and operate more economically by working with Pall Corp. and converting to MF. I am also optimistic that this can be achieved at a reasonable cost to the Town of Orleans.

Since the late phases of construction and then start up I have worked with a number of Pall Corp. employees. Because of the efforts of certain individuals I would hope for the relationship between Pall and Orleans to continue and strengthen. Please pass this along; the people that I have found courteous, professional, helpful and responsive are Eric Lorenze (for making the plant run), Mike Montag, Joe Kelly and of course yourself Lance Benjamin.

Thanks again,
Lou

Also, MA DEP has been notified that we are considering membrane replacement and that we anticipate changing to MF (micro membranes). This is detailed in the following letter:

Town of Orleans Water Department
19 SCHOOL ROAD
ORLEANS, MA 02653
TELEPHONE: 508-255-1200 ~ FAX: 508-240-3702

Louis A. Briganti, SUPERINTENDENT

BOARD OF WATER COMMISSIONERS

May 1, 2009

Michael Quink, Environmental Engineer
Massachusetts Department of Environmental Protection
Southeast Regional Office
Drinking Water Program
20 Riverside Drive
Lakeville, MA 02347

Re: PWS ID 4224000 WTF Membrane Replacement

Dear Mr. Quink:
Thank you for taking the time on March 18th to discuss Orleans' well no. 8 and membrane replacement at our treatment plant.

The Orleans Water Treatment Facility has been in operation since March 2005. This is a UF membrane filtration plant that is equipped with Pall Corp. LOV 5210 ultra filtration membranes. There are 68 modules in each of 3-membrane racks. Each rack has a rated capacity of 1.5 MGD.

At the time of purchase a 5 year warranty was provided by Pall Corp. That warranty will expire on March 4, 2010. The Orleans Water Department is planning to replace the membranes as the warranty expires. The recommendation of Pall Corp. and our consulting engineers is to replace all of the modules in 1-rack for three successive years. The first rack would be replaced in 2010, the second in 2011 and the last in 2012. It is important to begin the replacement process in 2010 to insure uninterrupted operation of the facility.

The cost of these membranes is great for the size of the Orleans system and the 5 year warranty makes this significant capital expense rather repetitive. The cost of replacement for 1-rack will be in excess of $200,000.

After careful consideration, as described below, we anticipate changing from the UF membranes that are currently installed to Pall Corp.'s MF membranes (UNA-620A). The MF membranes can be installed at a reduced price and are warranted for at least 10 years. It is my understanding that these MF membranes are NSF and DEP approved.

The following represents the issues that have helped guide our decision to select MF membranes:

1. The water being treated is ground water from arguably the most protected watershed on Cape Cod.
2. The levels of Iron and Manganese in the raw water are much lower than the levels experienced during the UF-pilot study. On average the concentration of raw water iron is between 0.5 and 0.7 mg/L. Manganese is consistently less than 0.05 mg/L.

3. The MF membranes are an approved technology that has been successful for applications similar to that of Orleans.
4. Chlorine is the oxidant and disinfectant used for this application. The Pall UF membranes are not chlorine tolerant whereas the MF membranes are chlorine tolerant.
5. With a larger pore size MF membranes will require less energy to create the feed pressure necessary for filtration.
6. The design of the Orleans facility includes both raw and finished water chambers that contain treated water. The retention time and chlorine residual eliminate any concern for log inactivation of viruses under the Groundwater Rule.

Iron and Manganese are the target contaminants that the Orleans facility was designed to remove and these approved MF membranes will provide the same level of removal with reduced operating expenses. The time between membrane replacements will double as the membranes are chlorine tolerant.

With almost 5 years of direct operating experience, the support of Pall Corp. and the help of our consulting engineers I believe that this change will in no way affect the quality of the drinking water produced by the Orleans facility.

At this time we respectfully request the help and guidance of MA DEP. We would hope to avoid the expense of a pilot study since the DEP-approved MF membranes are a minor change to the treatment process and are proven technology for the removal of iron and manganese.

We would be happy to meet at your convenience in Lakeville or Hyannis to discuss this matter. Please feel free to contact me at (508) 962-2658.

Sincerely,

Louis A. Briganti

Louis A. Briganti
Superintendent

cc: Stephen Olson, PE
Environmental Partners Group

Lance Benjamin, PE
Pall Corp.

Board of Water Commissioners

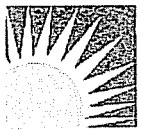
At this point it is probably safe to assume that replacing the membranes while trying to achieve a cost reduction and regulatory approval has risen to the level of a project.

Well no. 5 rehab

The bid for the rehabilitation of well no. 5 was awarded to Maher Services for $13,850.

Well no. 8

Cape Light Compact has again been very generous to the Orleans Water Dept. The Variable Frequency Drive necessary to control the motor is being supplied by the Compact. This will be an *Energy Compliant* component with a value of almost $13,000;



R I S E Division of Thielsch Engineering, Inc
1341 Elmwood Avenue
ENGINEERING Cranston, Rhode Island 02910

CONTRACT

This contract is entered into between RISE Engineering and Customer for work as described below:

DATE	**April 13, 2009**
CUSTOMER	**Orleans Water Department**
ATTENTION	**Lou Briganti**
TELEPHONE	**508 962-2658**
STREET	**19 School Rd**
CITY, STATE AND ZIP CODE	**Orleans, MA 02653-3606**

RISE Engineering agrees to provide install 1 VFD at well site 8 as per proposal # 005120

Total installed project cost:	**$12,615.00**
Cape Light Compact Incentive	**$12,615.00**
Customer Net Cost	**$0.00**

Terms
Net 30 Days

The area along the roadway to well no. 8 has been graded and hydro-seeded.

The pitless adapter that ties the well casing to the distribution piping was purchased and delivered. Installation is scheduled for May 5-6 with Brewster Welding.

Board of Water Commissioners

A bid has been completed for installation of the electric and fiber optic lines that will connect to well no. 2 and provide power and communication to well no. 8. A second bid has been completed for the purchase and installation of the pump and motor.

Miscellaneous