

Notes from February 13, 2007 Santa Paula City Council meeting and
Verteat Presentation by Noram Engineering.

WB: Wally Bobkiewicz, City Manager
RL: Ray Luna, Mayor
RF: Ralph Fernandez, City Councilman
BG: Bob Gonzales, City Councilman
JP: John Proctor, City Councilman
GA: Gabino Aguirre, City Councilman
JB: Jon Bishop, Executive Director, LARWQCB
BW: Bill Wilson, Wilson Environmental
JG: Jeff Guild, Noram Engineering
PM: Pat McKay, FOP Development Group(Funding)
Clive ?, Sr. Engineer, Noram Engineering
Dave Pollock: Inventor of deep shaft?

Mr. Bobkiewicz started the meeting with a history of the Santa Paula sewer plant and how they get to where they are today.

WB: In 1999 we were issued our current permit. At that time it became evident that the permit and the plant were not compatible. Staff was concerned with fines. Plant was built in 1939 and was at the end of its electro-mechanical life.

In late 2001-early 2002, we started exploring a joint plant solution with Fillmore. Our issues were more serious than they thought. We were facing \$8 MM in fines from our permit. The RWQCB wanted us to meet those requirements. We spent all of 2003 working on the joint plant.

In January of 2004, we realized that the cost to build a joint plant was prohibitive. Not only would we have to build a pipeline from Fillmore to bring their sewage over, we would have to build another pipeline to pump the water back to their basin.

We started on our own in March of 2004 and completed the EIR in April of 2005

From April, 2005 to March, 2006 we worked on the location and engineering. We toured Southern California looking at other plants.

Kennedy Jenks was working on the design. By the time they were only 30% into the design we realized that the costs would be prohibitive and stopped the process.

In July of 2006 we commissioned a Value Engineering Study from RBF. By December of 2006 we were ready to go with one of the Value Engineering study design alternatives.

A new City Council was elected. The new members wanted to learn as much as possible and perform their due diligence in making sure the city was pursuing the best option.

We are here with another option - from Noram Engineering. This was initially looked at but not exhaustively in depth.

RL: We will need a couple of days to process this information and decide. We are not prepared to make a decision tonight.

RF: We are new City Council members. With this kind of money involved we wanted to make sure it is the right decision. We are new and were not involved in the past and we should be.

RL: We do have respect for the regulations but we just need a few more days.

GA: We were surprised that we were violating the law. The costs will be tough but we must do this. The alternative is privatization and that is an even tougher situation.

JB: I report to a board of directors. They have looked at Santa Paula for a few years. We have tried hard to work within the Porter-Cologne Act. We want to work with communities. The board has worked with and will continue to help communities. We cannot dictate how a community makes this decision. We are only interested in helping them meet the requirements. Now there are mandatory minimum penalties for some components. We are working on the move to a consent agreement. It is not easy to do but it's important. We are working with legal counsel. We want the dates to be met. We don't want to have serial extension on TSO's. You don't want more penalties so let's move forward.

BG: The 1939 requirements were a different level of regulations. Every five years the regulations seem to change. Will regulations change in the next 5 years? If we meet them today will we have to change our plant in 5 years?

JB: There have only been two major changes since the 30's. First was the Clean Water Act that required secondary treatment. Then in 2000 came the Receiving Waters Regulations for toxics. There may be some minor changes in the future but not major changes. There may be some slight modifications. We do not expect to see a plant put in today to be redone every five years. Salinity in the river will be next requirement.

RF: We want something economically feasible. We want the correct path.

BP: If the Vertreat is 300' in the earth how do you monitor?

JB: I'll have to see the design. Perhaps monitoring wells. We'll have to study the potential for contamination. We'll likely want a way to monitor.

Dr. Bachman, United Water: Why are we commenting? We manage basins in Ventura County. We study recharge effects. WWTP is our recharge interest. LASAND chlorides are degrading our basins. Santa Paula is also, downstream. We operate the Freeman Diversion for recharge and distribution. We try to reduce pumping. United Water supported waiver of penalties in the past. We are waiting. Long term imperative to be done timely (2009). Water requirements for e-coli legislation will be restrictive. Concern that ag will be contaminated. We have no opinion on the technology just delays.

RL: We are not here to slow down the process. We want to move forward as soon as possible.

BW: Citizens group networked with engineers around the country and finally led to him. He has been in business for 30 years. We work with Mr. Dave Pollock. He is a wastewater expert who designed deep shaft. Most communities don't have a funding mechanism or rate structure to pay for this. We went down to work with Gov. Haley Barbour of Mississippi after Katrina. We got Zenon to donate equipment for emergency use to make potable water. All their infrastructure was lost. They wanted something cost effective, low cost and predictable, something that would last 30 years and the subsequent hurricanes wouldn't damage.

Energy and water costs have risen 3x in the 90's and will rise again 3x in the next 10 years.

Water. Design has to consider. 1939 was oldest with a high level of treatment.

Vertreat is secondary treatment. Activated sludge is common for the region. But activated sludge is inefficient. You're wasting air bubbles. Air bubbles require high energy and high blowers.

Vertreat has high oxygen. 20% oxygen. The water "gets the bends"

I was on the Title 22 rule making advisory board. The requirements for Title 22 are
1. aerobic 2. filtration 3. disinfection (with UV or chlorination)

We like Dynasand for filtration. It is low maintenance and highly effective. NYC is using Dynasand with membrane. DynaSand outperforms most other filters. The US EPA rates Dynasand as membrane equivalent.

Dynasand requires little maintenance. They just pull out the screens once a year. They can also treat nitrification/denitrification.

Vertreat uses advanced aerobic, then you have Title 22 filtration then nitrification/denitrification.

You would probably have to do a supplement EIR. 45-90 days. Very little impact.

We can be ahead of time. We are affordable and you can provide rate stabilization.

JP: Do other states have the same comparisons for low nitrogen, tss?

BW: Yes. TSS <5, BOD <2. The footprint makes EIR lower impact and you have wet weather stabilization. Zenon is plug and play for potable H2O(?).

PM: We are here to assist Santa Paula and Noram. You have the ability to control your own destiny. We have rate stability with our finance program. We will meet Title 22. You are protected. Options are; 1. Performance based contract. FOP pays up front capital and SP pays back \$ per treated gallon. 2. Lease plant. 3. Design & Build. There are assurances to the City. The lender sees that this is for municipal services. A service contract between the City and FOP is the collateral.

Santa Paula's current projections are for \$60/month in 2009. With Vertreat it would be stable at \$43 in 2009. They are comfortable with operations. It is less risk for them to have a product they know can perform. They are putting up their money based on it.

JP: What are construction costs? Current costs? Contingencies? Is stabilization guaranteed?

PM: The operating costs for rate stabilization would go up with COLA. A municipal contract is a great collateral asset. Guaranteeing that rate payers can pay. They have a technology guarantee.

We work with Noram or companies that lenders want to work with.

GA: How many projects have you funded with Noram? I conclude you are a broker.

PM: We haven't yet. We want to work with municipalities. We're making the guarantee, we're building the plant.

RL: Like a mortgage?

Clive: We are long time engineering and constructors. We provide equipment and engineering. We want to work with local civil contractors. Vertreat uses 50% less energy.

(on a scale from .5 to 3.0) Vertreat= 0.5, Activated Sludge=2, MBR=3

(Presents slide show of Noram qualifications, history and projects.)

JG: I want to talk about Vertreat(wastewater treatment) and Vertad, which is our sludge digestion process. We have 200 plants worldwide.

Vertreat provides all air for mixing. The super saturation can get much more oxygen. This reduces detention time for complete BOD destruction, similar to membrane in clarification. Very close to MBR but much lower expense.

The nitrification/denitrification is done in the biofilters, followed by sand filtration. There is an odor control advantage with this process. With the smaller footprint advantage you can cover and control vent air from the system. Since it's contained you can treat. More air = less gas. BOD = 5, TSS = 5. Total nitrification and ammonia removal.

The casing is 3/4". No corrosion. Casing has a life of 125 years.

RF: How do you protect the weld?

JG: With drilling mud (thought RF was saying "how do you protect the well(bore)?")

Dave (drilling expert): The casing has a weld. There is nothing applied to the weld for corrosion. The outside is cased by concrete. The inside is protected by the phospholipids from the waste stream. This is an anti-corrosion.

BG: How do you keep from earthquake?

JG: Seismic activity is not a problem for us. The majority of our installations are on Pacific Rim. Underground installation is more resistant than above ground.

3 months from drilling to ?.

We have only 1 plant in the US, built in 1991. It was called Deep Shaft then, Noram bought afterwards. The Homer plant has effluent of <10 BOD, <30 TSS. This is w/o any biofilters. Staff maintains. Has never taken offline.

There are pipes inside but we have designed a way to change them out without disrupting service.

Biofilter treats off gas. Porous rock biofilter..... for nitrification.

Santa Paula current situation

2.4 MGD w/ trickling filter

Need for influent of 3.4 MGD and peak flow of 7.2 in 2025 will need 4.2

Inf: BOD = 320 mg/l

TSS: 210 mg/l

TKN: 53 mg/l

Efl: BOD < 5
TSS < (didn't catch)

New Process Design:

1. screening
2. secondary treatment(deep shafts)
3. secondary clarifier(20x80) 6 each
4. Nitrification/Denitrification(13x13) sub bio(?)

Dynasand or Astrosand can be used for nitrification. You can reconfigure them to handle this. Then provide a low dose of methanol.

Capital costs. From VE study

MBR \$73,600,000

Vertreat \$72,000,000(don't know how VE came up with this \$, Noram not consulted or contacted for VE study)

Their costs

Vertreat \$57,900,000(Noram costs)

They also have sludge digestion. They just left in the VE study estimates for sludge digestion. Vertad would probably be less but since they hadn't been asked for sludge treatment didn't change anything.

Vertad does treat to Class A sludge and eliminates pathogens. Class B does not eliminate.

They can cut Santa Paula's sludge hauling trips in half.

JP: What is this Title 22 letter from Jeff Stone at DHS? Does each step of process require certification?

BW: If we wanted the Vertreat itself to be Title 22 we would have to jump through those hoops. It is not necessary though. Vertreat is an activated sludge component. All plants in the region and LA region are some variety of activated sludge with a Title 22 filtration. Title 22 is not required for an entire plant.

JP: What about the WQCB? Do they have to give us a permit to run the Vertreat?

JB: We would modify the permit just to change the description. But no, we don't regulate any aspect of the technology or drilling.

City Attorney: We do have a broad EIR that looked at the effects of activated sludge/MBR and oxidation ditch. Would require modification. Could be 45-90-180 days.

Santa Paula goes to perc ponds. Don't want to go to river. Costs \$1,000,000/year to go to the river.

Other issues besides CEQA. We have to assume more time delay for litigation.

Noram: Contract signing to commissioning takes about 16 months.