Desalination Stakeholder Meeting Minutes - August 29, 2012

Opening Remarks and Housekeeping – Marlo Wanielista Berg (facilitator)

Last meeting

1. Identified computer models as an alternative to pilot studies for RO
2. TCEQ produced draft guidance document

Today

1. Gather comments on draft staff guidance document

Marlo Wanielista Berg, TCEQ – Any questions about the goals of this meeting?

Tony Bennett, AB Consulting- I agree with framing of the meeting. I would like to discuss brackish surface water treatment.

Marlo Wanielista Berg, TCEQ – Today will be focused on brackish groundwater treatment. This item will be put in the parking lot to discuss at another time.

Staff Guidance Documents

- Not a rule – assures consistency among TCEQ staff
- Regulated community sees them too so they can know what we're doing
- Information and a checklist
- Common method of communications with public drinking water community
- Since the 1990s
- Has a shorter timeframe to develop

Stakeholder Input – Basis of Design

What safety factor should be applied to raw water quality?

bottom of page 7 in draft Staff Guidance document

Marlo Wanielista Berg, TCEQ – We are looking for feedback on what safety factor (SF) to be applied to the raw water quality.

Tony Bennett, AB Consulting – What is your concern in wanting a safety factor? Long term drift? Short term change in variability?

Marlo Wanielista Berg, TCEQ – We're most concerned that the design works when the plant goes into use. Does anybody use safety factors on raw water quality?

Justin Sutherland, Carollo Engineers – If you have multiple wells, use the worst case wells.

*Marlo Wanielista Berg, TCEQ - What if the systems n*eed water now and have no test well – only private well data?

Steven Walden, SWC – Water quality data available on brackish water and more specific data available on some aquifers via the Texas Water Development Board. If risk is involved you have to apply data closest to your well.

David Williams, *TCEQ* – Is there a safety factor that could be applied using only one sample?

Steven Walden, SWC – Rely on TWDB data – reliable vs. well that hasn't been developed. SAWS experience. Water quality wasn't what they expected.

David Williams, TCEQ – Well with first set of data – is that a stable source or apply a safety factor? Small system engineers, what are they doing? Should there be a minimum safety factor?

Mark Zeppa, IWSCOT – Really focus of what are you trying to get water for – people vs. data. You don't have data and can't get it you have to take the risk.

Marlo Wanielista Berg, TCEQ – What can we do with no data that would allow us to get water to the people quickly. Raw water quality is the basis for design.

David Yohe, SWWC – Operational question – drill a well and quality is outside of the parameters that you want, well gets developed and periodically sampled – but design treatment to meet requirements – physical structures will be the same. Membranes may change. TDS won't change drastically.

Small systems without data there will be time to monitor change in quality. In the meantime – 1300 TDS vs. 1000 can we use it as opposed to no water?

Marlo Wanielista Berg, TCEQ – Yes.

Glen Lewis, Aqua Texas, Inc. – Small system pumping water for 30 years with 1300 TDS and its been under the radar. Can you set different parameters for a grandfathered well?

Marlo Wanielista-Berg, TCEQ – You have 30 years of data that you can use to design your plant.

Tony Bennett, AB Consulting – Safety factor applies to product on back end, potential variability at front will affect quality and quantity. One safety factor for raw water – what about design and operation? What is most important?

Marlo Wanielista-Berg, TCEQ – This is what TCEQ wants feedback on today.

Roy Daly, CSM - Potential for 3 types of safety factor

1. Variance within feed water analysis
2. Saturation chemistry – antiscalants, etc.
3. Relative to health concerns – he would advocate for high safety factor for that

Marlo Wanielista Berg, TCEQ - By a show of hands, do we need a safety factor for raw water? Vote – Yes, 1; No -3

Stakeholder - Safety Factors can add cost and should focus on health. Once a plant is put online it usually has to be tweaked.

Joe Torralva, SWWC - Focus on aquifer – different quality. Base the Safety factor on location or aquifer

Linda Brookins, TCEQ – Question for TWDB. If you're giving a grant or loan, what concerns do you have for the design to be within the budget to fix the problem identified?

Rene Gonzalez, TWDB DWSRF –Public health. There would have to be information on the water quality to rank in State Revolving Fund. Everybody wants their plant on-line tomorrow. He would probably encourage engineers to explore all alternatives available so when a project is cleared, they are pretty sure of what the project will be and the costs

Linda Brookins, TCEQ - What assurances does TWDB need? What risks are there for a project?

Rene Gonzalez, TWDB DWSRF – with respect to grants – based on disadvantage status in the community.

Marlo Wanielista Berg, TCEQ – If a project fails, what happens to the funding?

Rene Gonzalez, TWDB DWSRF – Whatever would be put in environmental document would be acceptable. There are ways to help them figure out ways to adjust the project.

Tony Bennett, AB Consulting – Always a safety factor is usually built in on back end – they have to have water that is compatible with water already in the system. From a regulatory standpoint people probably set lower than MCL.

Marlo Wanielista-Berg, TCEQ - Some systems do not give any leeway on submittals some go right to the best case scenario rather than plan for any issues.

Tony Bennett, AB Consulting – If you're doing brackish RO – secondary constituents instead of primary. Primaries aren't in model.

Alan Murphy, Bob J. Johnson & Associates – Small MUDS – comes down to money – design and testing – If they take things off, like pretreatment, it's all driven by cost. The customer doesn't get all the information they need before they go out for grants.

What Silt Density Index (SDI) should require pretreatment?

Marlo Wanielista-Berg, TCEQ – on page 8. When should pretreatment be expected? at greater than 3 or greater than 5 silt density index (SDI)

Justin Sutherland, Carollo Engineers – 3 is rule of thumb for pre-treatment. Some models don't use SDI.

Roy Daly, CSM – General rule – 3

David Williams, TCEQ – Specs are usually 5, comfort level more at 3.

Roy Daly, CSM – Performance over long term, performance is greater at 3

David Williams, TCEQ – We don't want to be out of line with what people are doing.

Marlo Wanielista Berg, TCEQ – We could go by mfg recommendations.

David Williams, TCEQ – Is there a reason we shouldn't set it at 3? Most manufacture's specs say SDI of 5 is max, but really they like 3 better.

Roy Daly, CSM – If additional pretreatment is going to be required for a difference between 5 and 3 and the cost is outside of range of the PWS that should be considered. If above 5 require pretreatment. If 3-5 leave it up to engineer/system.

Justin Sutherland, Carollo Engineers – If 3, what are you going to do?

Marlo Wanielista Berg, TCEQ – We will look for more information showing that pretreatment was considered.

David Yohe, Southwest Water - if SDI >3 – Require discussion to address

Gary Rose, SWWC – Difference is in the effect on rates to end user. Is capitol required going to raise rates? Operation and maintenance is less costly to rate payer than capital expenditures.

Marlo Wanielista Berg, TCEQ - The main concern is that the PWS has considered options knowing all the scenarios.

Mark Zeppa, IWSCOT – Just tell us, say, "If you have greater than 3, tell us what you have considered."

Other Comments on the Basis of Design Section

David Yohe, SWWC – DBP formation based on before and after treatment –formation is based on raw water and finished water. Where should that fall in discussion?

Marlo Wanielista Berg, TCEQ - We can move this topic to another section of the staff guidance.

Tony Bennett, AB Consulting – Raw water quality parameters table. Radionuclides are present in the microgram ranges – are they significant in fouling? The removal is expensive (and testing).

Marlo Wanielista Berg, TCEQ - the parameters here were either from AWWA standards or from the project team. Mostly Radionuclides are looked because they are primary contaminants.

David Williams, TCEQ – Based on other wells and aquifers, you would have information.

Steven Walden, SWC – Why are these parameters on the list? AWWA? stakeholder concentrating on residuals management? Occupational issues, disposal?

Justin Sutherland, Carollo Engineers – For this guidance to apply, you need to know they aren't there. Strontium fouls membranes.

Marlo Wanielista Berg, TCEQ – We can look at moving primary standards to another table and possible include suggested contaminants for certain counties.

Stakeholder Input – Design Criteria

Adequacy of Antiscalants

Marlo Wanielista Berg, TCEQ – let's discuss. *See page 10*

- Pretreatment – how to review the adequacy of antiscalants?
- Concerns about antiscalants
- How much review does TCEQ need to do of antiscalants?

Steven Walden, SWC – TCEQ's role is not to get too detailed about what type of anti-scalant is used. Let PE choose.

Tony Bennett, AB Consulting – Tries not to get between 2 chemical salespeople

Justin Sutherland, Carollo Engineers – Usually the water system sources chemicals. There may be some difference in performance based on water. How do you check that in design? Model uses solubility. Vendors have models and there may be difference in WQT. Operator would make tweeks.

Mark Zeppa, IWSCOT – Let the P.E. do the design and take the heat if it doesn't work.

David Williams, TCEQ – With a pilot study, an antiscalant is already being used. We don't have that comfort level with a computer model

Mark Zeppa, IWSCOT – Why is it different than a pump?

Gary Rose, SWWC – You could be looking at a sole source or operation across state, etc. with relationship with vendor. They would take raw water quality analysis to vendor and request spec'd product. They may try 3 or greater. Regulatory agency shouldn't pick.

David Williams, TCEQ – Don't want to lock anybody in if there is a better treatment protocol. We don't want to do this – be prescriptive, but we do want to have some confidence antiscalant works.

Alan Murphy, Bob J. Johnson & Associates – It comes down to cost. Engineer should know and be responsible for quality and maintenance.

Marlo Wanielista Berg, TCEQ – TCEQ is a safety net for those engineers that have no experience. What I am hearing is the general consensus that TCEQ should stay out of what type of antiscalants is selected by a water system.

Finished Water Safety Factor

Marlo Wanielista Berg, TCEQ - Page 12 What do you do with data from computer models. Do we need to apply a safety factor to the end? Do we need a safety factor and if so, what should we use?

Tony Bennett, AB Consulting – "minimum safety factor of 1.5 should be applied..." Application of safety factor. Computer says 30 TDS would equal 45.

Marlo Wanielista Berg, TCEQ – 1.5 was from vendor models.

Tony Bennett, AB Consulting – SCEMA Conference – discussion on computer modeling.

David Williams, TCEQ– Some people are big proponents of pilot studies. Variability in direct and indirect systems in wastewater. Can't tell what is fouling membranes. We know that with brackish water the models work pretty well, but we're not going to do modeling in other areas.

Tony Bennett, AB Consulting – The models have variability, but not even close to 50 %.

David Williams, TCEQ – Not talking about health issues – Kay B. plant variability – 10-15%.

Justin Sutherland, Carollo Engineers – Study shows 10 – 15%

Roy Daly, CSM – Speaking from a manufacturer standpoint 1.5 is good, best not to go any lower.

Gary Rose, SWWC – Safety factor at specific temperature (water) to protect flow

Roy Daly, CSM – temperature correction factors with membranes are well studied so permeate quality is often more variant than flux with regard to temperature. Permeate quality with 1.5 safety factor more pertinent than temperature. The temperature correction factor has been well studied and he is more comfortable with those numbers.

Alan Murphy, Bob J. Johnson & Associates – GW temps are not the same – some systems have hot water.

Marlo Wanielista Berg, TCEQ –We are referring to temperature of an individual well. The safety factor we are discussing is for the model, not the raw water quality.

Alan Murphy, Bob J. Johnson & Associates – Most engineers shoot for 500 TDS finished.

Justin Sutherland, Carollo Engineers – Look at POE – What comes out of model doesn't reflect POE with blended water. Is the model the right place to put it? Should it be on blended water?

Marlo Wanielista Berg, TCEQ – What is the rule of thumb?

Justin Sutherland, Carollo Engineers – Client specific, WQG. Other safety factors may be related to actual fouling and you provide for extra capacity?

Other Comments on the Design Criteria Section

Marlo Wanielista Berg, TCEQ – Other comments?

Brad Castleberry, Lloyd Gosselink– Process started to address brackish water only. Could the protocol for engineering report –be the same for surface water?

Marlo Wanielista Berg, TCEQ – Possibly, but not decided. We are going to complete the groundwater portion first.

Tony Bennett, AB Consulting – Trying to key in on with using safety factor? what failure concerns for TCEQ?

Marlo Wanielista Berg, TCEQ – Water quality and secondary contaminants. Fouling and cost. If you've funded for certain system and life span – long-term cost recovery.

Tony Bennett, AB Consulting – Once system goes into operation, system drifts – is there some endpoint at which TCEQ would call the project a failure and tell the system you have to fix it?

David Williams, TCEQ – failure of the design is likely to produce a capacity issue. This is probably where the system will be caught

Marlo Wanielista Berg, TCEQ – Even with primary constituents people don't complain, but with secondary there are customer complaints.

Tony Bennett, AB Consulting – What are the drivers that "we need to make these things work because..."

Ruth Takeda, TCEQ – When they lend money on 20 year loan they are concerned with length of life – plant must last the length of the loan.

Linda Brookins, TCEQ – Rate payers are paying for something new, expecting some improvements to the water quality. Legislative complaints come in as well as customer complaints. New revenue generation and plant upgrades should try to address customer complaints.

David Yohe, SWWC, DBP – from pg. 2 – When you come in for approval for RO don't you already have water quality approved?

Marlo Wanielista Berg, TCEQ – No – emergencies and large well fields. Hydrological studies not required, but if available submit them.

Stakeholder Input – Proposed Operational Procedures

Operator Training

Marlo Wanielista Berg, TCEQ - Operator training – licenses are required according to type and size of training. What, if any additional training is needed for RO?

Glenn Lewis, Aqua Texas, Inc. – You betcha!

Mark Zeppa, IWSCOT – Operator Certification went through tasks and divided up to classes. What are you looking for?

Marlo Wanielista Berg, TCEQ – In the past, we've required specific training for different types of systems. Engineers talk about operators and operators talk about engineers.

James "Red" Weddell, TCEQ – In the past we've required so many numbers of hours for vendors to provide on certain equipment.

Tony Bennett, AB Consulting – Membrane specific training is miniscule – TEEX has 8 hr workshop – SCMA has 2 modules in for review at TCEQ – Membrane basics and operations of High Pressure (RO) – each 20 hours courses. They are very interested on getting them on the street and are looking for comments from TCEQ. Any comments would be helpful.

SWWC – Adopted from SouthEast Desalting Association – contract to reproduce

Tony Bennett, AB Consulting – Florida has used for years.

TWDB – Training committee. Requirement for trainers is very specific and it is difficult to meet those requirements and they are having trouble getting trainers certified because these documents haven't been approved.

Marlo Wanielista Berg, TCEQ – Is that the general consensus?

SWWC – Absolutely agrees. Classroom training is best practice plus specific vendor training.

Alan Murphy, Bob J. Johnson & Associates – Should be training, but lack of operator training is a problem. Manufactures should do follow up training with new employees.

Tony Bennett, AB Consulting – Agrees with vendor specific training.

Roy Daly, CSM – SCMA has a workshop.

Glenn Lewis, Aqua Texas, Inc. – Training is imperative, you can ruin membranes in 30 minutes. Classroom training is good, but hands on training is necessary. If you don't do that it's like a mechanic with no hands on experience working on a car.

David Williams, TCEQ – What about water lab class – (higher level) operator should have to take lab class

David Yohe, SWWC: Time or feasibility of operators being surveyed? Operator-to-Operator offer questions and help. Membrane systems on-line – surveyed, had initial training, ins and outs of startups – from operators.

Marlo Wanielista Berg, TCEQ – Has SCMA ever done a survey?

Tony Bennett, AB Consulting – Operators forum held at water conference, there are horror stories about taking system down by mistake. The conference also offers trouble shooting segments. Easiest way to foul up membranes is scaling.

Marlo Wanielista Berg, TCEQ – Is that information put into classes?

Tony Bennett, AB Consulting – There are troubleshooting segments as well as a troubleshooting workshop – big need for people to understand.

David Yohe, SWWC – This is the direction he was thinking people teaching classes are people that have been operating membranes and know what they are talking about but cannot provide official training due to TCEQ policy.

Tony Bennett, AB Consulting – People teaching classes are people with experience but don't meet training requirements (TCEQ).

David Williams, TCEQ – Training – vendor and general (maybe SCMA) and TCEQ

Other Comments on the Proposed Operational Procedures Section

Marlo Wanielista Berg, TCEQ - Some requirements are in rules and in exception letters – we want you to tell us what is there you are going to do different?

David Yohe, SWWC – Have to have site specific design to keep unit operational. Clients have a need for removing specific contaminants and that needs to be flexible. Then you will work with the engineer or vendor to meet water quality standards.

Marlo Wanielista Berg, TCEQ - Some of the monitoring can be described in a letter, so it doesn't need to be in this section.

General comments

Marlo Wanielista Berg, TCEQ - Thank you to project team (the below are in attendance today)

- TWDB Project Team: – Saqib Shirazi, TWDB; Justin Sutherland, Carollo Engineers; Steven Walden, SWC
- TCEQ: David Williams, Joel Klumpp

Stakeholder Input – General Information

Marlo Wanielista Berg, TCEQ – Have items in checklist. Such as submittal by a P.E. Use English units. PWS ID No.

Justin Sutherland, Carollo Engineers – English for design. Use mg/L – water quality.

Mark Zeppa, IWSCOT – Identify units and be consistent.

Marlo Wanielista Berg, TCEQ - We based this on the project summary 290.39(e)(1). Also if you have a ground water conservation district you need to check with them to make sure you can use the well after installing it.

Marlo Wanielista Berg, TCEQ – Currently RO systems require a pilot study.

Stakeholder Input – ANSI/NSF Certification

Marlo Wanielista Berg, TCEQ ANSI/NSF certification – provide proof.

David Williams, TCEQ – For small systems and low flows we have used NSF Standard53 and the NSF Standard for POU – we have used other standards as appropriate.

Stakeholder Input – Residuals Management

Marlo Wanielista Berg, TCEQ - You don't have to show us discharge permit, just want engineers to think about necessary permits.

Ruth Takeda, TCEQ – language and clarification will need some corrections, be sure to say who needs to be notified or contacted for guidance.

Marlo Wanielista Berg, TCEQ – Any other comments on this document?

Tony Bennett, AB Consulting – Hydrogeology etc, are in well approval process – can we put in other documents and other approvals needed? Examples: hydrogeological report - put in well approval, impact on source water of other strata, etc.

TCEQ's Next Steps

Marlo Wanielista Berg, TCEQ - Get the TWDB team together, produce final document and send out for review. How is the best way to get people information?

Steven Walden, SWC – TCEQ's Drinking Water Advisory Work Group (DWAWG)
Website
Affiliate Associations – TRWA, etc.

Tony Bennett, AB Consulting – thinks you hitting a pretty good group concerned with sending out documents, 2 week turnaround is too tight – longer lead time would help.

Steven Walden, SWC – Many people got the document and are happy with the direction.

Joel Klumpp, TCEQ – Will there be another stakeholder meeting?

Marlo Wanielista Berg, TCEQ – Don't know yet, but we may combine the meeting with a regular DWAWG meeting.

Glenn Lewis, Aqua Texas, Inc. – Does it go to all engineers in state?

Marlo Wanielista Berg, TCEQ – Only everyone that has come to meetings, requested to be included or has talked to us about desalination in the past. We do not send it tall the engineers in the state.

Parking Lot

Surface Water RO Treatment
There are concerns with meeting the requirements to be a TCEQ trainer. Some say they are too stringent.