

- Include a Glossary of Acronyms for ease of use for reader. You will probably need this for a final report. Why not start on it now?
- Figure 1-1, project timeline, displays the timeline for RO Product Post Treatment and Reject Treatment tasks (tasks 8 and 9) to start 8 month prior to RO testing (task 7)? Is this lead time used for a desktop study?
- The WQ monitoring timeline task 4 is not consistent with the task frequency of testing described in section 3 of the test plan. There could be more detail on the timeline, however there are hidden rows that are not displayed for the reader. For example, project timeline line item 29 shows the pertinent cation/anion and TDS sampling as a onetime event at the beginning of the test, however in section 3.2.2, this is a monthly sampling.
- Is a 9 month RO pilot test long enough to capture all or most of seasonal variability and possible annual events and/or other events such as red tide occurrences? We recognize that red tide events are not regularly scheduled events.
- Would it be possible to extend the test slant well casing to decrease the fraction of river water and increase the fraction of seawater, hence increasing the salinity of the feedwater, and add 3 month of additional RO testing after the 18 month extended well pumping study? The effect of higher salinity feed water can be studied for the full scale plant scale-up.
- Regarding nitrogen blanketing, Is the nitrogen blanket turned back on after the first 6 months? Section 2.3 describes the schedule for well startup and operation, but there is no mention of status of nitrogen blanket after the initial 6 month timeframe.
 - In the RO Testing section, section 6.2, there is mention that the nitrogen blanket can be turned on or off depending on the desired test condition. It would be useful to operate under both conditions to study the operational and cleaning procedure. The effect of nitrogen blanket would also be useful in studying the effect of Iron and Manganese on RO operation.
 - Are there likely to be any lingering effects on the process equipment or operation caused by exposure to air during the period when the nitrogen blanket is turn off? For example, might any iron and/or manganese compounds that dropped out in the process equipment cause problems later? Might there be problems during the microbial fouling tests in section 4.2 with the Nitrogen blanket cycling on and off?
- A brief safety section for each part of the test plan is provided. However, this approach fragments an important issue. Is there a single document such as a Job Hazard Analysis that includes all hazards, describes safety equipment and when to use it, and provides chemical MSDS safety sheets for the entire test plan?

- During critical alarm occurrences, does the whole system shut down, including the slant well pumps? This could cause long shutdowns, since on weekends the critical alarms will be addressed on the following Monday?
- At the end of section 2.2, Nitrogen line pressure is said to be set at 1-2 psi, is that psig?
- In section 3.1.2, satellite maps are observed for chlorophyll-a for detection of algal blooms. Is it possible to use a handheld chlorophyll-a meter to sample the seawater for chlorophyll-a? The current sampling schedule on Table 3-1 displays weekly temperature and conductivity measurements. Chlorophyll-a measurements can be added to this weekly sampling. More frequent chlorophyll-a measurements could also be taken during a red tide event.
- As described in the documents, some of the samples will be from the ocean itself 12 inches below the surf zone. How far out into the ocean would this be? Is there any expected turbidity interferences from the silt and sand present in the surf zone?
- Is an “extended SDI” a 15 minute SDI test? If not, what?
- Section 3.6.2 investigates bench scale assessment of pretreatment requirements and discusses several ratios at which a blend will be made up to simulate full scale plant. Are these blend ratios of total seawater TDS or % sea water to well water? Confusion is introduced because the well water is already a blend of seawater and groundwater. For example, if using seawater with a TDS of 33,684 ppm, is the 95% SW a sample at 32,000 ppm or 95% seawater and 5% blend, therefore having a somewhat higher TDS than the 95% SW?
- Also in section 3.6.2 the procedure for initially filling the carboys for the blend testing can introduce air into the mixture, which needs to be avoided.
- Do you plan to clean the coupons used in the biofouling and corrosion testing prior to the start of the testing? These coupons will almost certainly be contaminated with fingerprints, oils and various other materials when you receive them. If so, how?
- Section 5.2 refers to Dr. King’s Scope of Engineering Services document which is appendix C. Appendix B is called for on page 24. Appendix C can be referred to in section 5.2 to maintain consistency of references to appendices.
- Will RO operating parameters such as flux be varied to permit optimization of operation for full scale plant?
- Table 6-1 displays 7 RO elements per vessel for the pilot test, Section 6.2 describes two vessels in series simulating a single stage of 7 SWRO membrane elements in series, and Table 6-6 displays 8 RO elements in use with 2 additional elements in reserve. How many vessels and how many elements per vessel will be used for the testing?
- In case of RO fouling, are any cleaning strategies planned?

- Section 9.0 includes a full scale design based on the pilot study. What is the level of uncertainty associated with the short pilot test for modeling/scale-up of the full scale plant? A particular problem is that most of the RO pilot testing is done at lower TDS concentration than that anticipated for the full scale plant.
 - Will the full scale design be based on the results from the one week pilot tests at the higher TDS operation (using the recycle line) scheduled for every 90 days?
 - Are any problems anticipated for the RO pilot test before, during or after the one week high TDS testing?
- On the process flow diagram overview for phase 3 pilot testing, a 10 inch PVC pipe is shown to take 2000 gpm of water to the outfall diffuser. The velocity in the pipe is 8.17 ft/sec, which sounds high. A 12" pipe would reduce the velocity to about 5 ft/sec
- Have any RO permeate water quality goals (boron, sodium, chloride, etc.) been established for the project?