
From: "abarrow" <abarrow@sbcglobal.net>
To: "Tom Ruehr" <truehr@calpoly.edu>
Cc: "al barrow" <abarrow@sbcglobal.net>
Sent: Saturday, September 01, 2007 5:35 PM
Subject: Fw: :Collection Comparisons, 3 years ago and the myth still stands

----- Original Message -----

From: [Mike Saunders](#)
To: '[abarrow](#)'
Cc: '[Bill Cagle](#)'
Sent: Friday, August 24, 2007 11:28 AM
Subject: RE: :Collection Comparisons, 3 years ago and the myth still stands

Mr. Barrow, I have addressed the comments presented by Mr. Taylor. My comments have been added in red type so that they can be differentiated from the comments being made. I have included the initial e-mail for reference purposes. The statements and replies are as follows:

Statement 1: First of all, your system. Even though you often refer to it as STEP/STEG, if the collectors are a uniform 3 to 4 feet below the surface and follow the contour of the ground, then the collectors must be pressurized. Water will not flow up hill (to follow the contour of the ground) unless it is pumped. So you are talking about a pure STEP system. There is no part of it that is STEG.

This statement is incorrect, flow can travel over an up gradient provided that the Static Head (Determined by the tank discharge elevation) is higher than the pressure gradient within the pressure main. The proposed treatment location from the Ripley Report has elevations ranging from 30" to 110' above sea level. The service area in Los Osos has elevations in some areas more than 160' above sea level. This elevation variance does create the possibility that STEG could be utilized. Unfortunately, we cannot determine how much STEG may be utilized until design work is initiated.

While it has never been discussed in the fine screening, because the STEP/STEG system is pressurized, treatment can easily be decentralized to multiple locations. Typically this would be considered in areas that may have a large irrigation need. By decentralizing the treatment, it saves on the cost of force mains and purple irrigation piping. For example, if the golf course has a need for 200,000 gallons of irrigation water per day, 200,000 gallon of treatment could be decentralized to the vicinity of the golf course. The low elevation of the golf course could facilitate the ability for more STEG systems to be utilized..

At this time, we have not seen any pricing that assumes the use of STEG systems. Any systems that could become STEG probably would save about \$1000.00 in cost per home. Additionally, O&M cost would probably be about 50% lower per household for each one that uses STEG.

Statement 2: I make the distinction, because the 2000 Oswald Report, was a hybrid. Bill Bownes felt that the lowest lying parts of the Community should be STEP. He was planning to use shallow trenching for these. This system would cover 30%. The 70%, in Bownes' design, would be STEG. As you know, STEG systems require a slightly greater minimum fall than a conventional gravity sewer. So STEG collection systems will go slightly deeper into the ground than conventional.

The minimum fall in a gravity sewer pipe is determined by the minimum flow velocity. Typically the minimum flow velocity for gravity sewer is 2 Ft./sec. The minimum flow velocity is necessary for self cleansing of the sewer pipe (to flush solids out of the main). Generally, flow velocity in gravity sewer pipe is determined by Manning's Equation. Variables in Manning's Equation that affect the determination of flow velocity are the interior pipe characteristics (essentially the amount of pipe friction), the hydraulic radius (this is determined by dividing the cross sectional area of the pipe by the wetted perimeter that is contact with the pipe) and the slope of the pipe.

Relatively speaking, as you increase pipe size, the minimum slope necessary to achieve the minimum flow velocity decreases. However, gravity sewers are typically sized at a minimum of 8" diameter pipe despite the fact

that the hydraulic capacity of an 8" pipe is not required. This project, I believe, is proposing 8" pipe at .16% grade. By Manning's equation, assuming a full pipe, the capacity of this typical pipe is in the range of 400 gpm. This is enough capacity for approximately 700 to 750 homes assuming typical flow rates for single family homes. This size pipe is however, utilized on all pipes. Accordingly, a pipe with capacity for 700 homes may only have 1 home. When you don't have enough homes on the main, which is most often the case, the actual flow velocity will never approach the necessary 2 ft/sec for scouring velocity. Accordingly many states mandate minimum slopes of .4%, mandate minimum flow velocities based on actual hydraulic flow (greater fall) or they initiate an intensive maintenance program to flush lines that are prone to sedimentation. If the gravity system was actually designed to assure minimum flow velocities, I believe that the system depth (deeper) and/or the number of lift stations (more) would be significantly different. The cost of the gravity system would therefore, be higher.

Stating that a STEG system requires more fall is incorrect. In a normal STEG application, the pipe still follows the topography of the land as previously mentioned. Static head, and not pipe gradient, is utilized to move the wastewater. Alternative design options can include an on-site tank discharging to a conventional sewer that empties into a traditional pump station or homes can gravity sewer to a common tank that serves multiple homes. If the wastewater flows through a STEP tank before it enters a gravity pipe, the pipe friction will be less and the need for a minimum flow velocity can be reduced from 2 ft/sec to 1 ft/sec since there are significantly less solids in the raw wastewater. In theory, the slope of a gravity sewer receiving flow from only STEG tanks could require as little as half the slope as one receiving conventional wastewater flow only. If the wastewater was gravity flowing to a common tank serving more than one house, the slope would be exactly the same.

Statement 3: So, in your STEP system, the 204,000 linear feet of collectors would cost \$3.4 million. There would be about 4800 laterals that would have to be hooked up. Using Tidwell's figure of \$3500, this would come to about \$16.8 million. The combination would be \$20.2 million. I doubt that the figures include a 10% contingency, inflation escalator, etc. but let's go with that.

If we are anticipating 4800 connection, We would generally anticipate the following methodology would be utilized. First, we have to recognize that STEP mains, just like water mains, are constructed in the green area adjacent to the road and not within the black-top area. Also, a service is typically 1" in diameter. Additionally, the main is generally on the opposite side of the road from the water main. Accordingly we should anticipate that 1/2 of the laterals would be what we call long side services (they must cross under the road) and 1/2 would be short side laterals. Therefore approximately 2400 homes require long side laterals. Most often, long side laterals can be combined to serve two homes (just like water services). With this in mind, we can now state that approximately 1200 long side service would be required with construction of the main. A long side service, installed using a mole to cross under the road (rather than cutting the road), will typically cost in the range of \$900.00 each. Therefore long side services can be anticipated to cost around \$1.1 million total.

The short side services can be installed with the main or they can be installed when the on-lot connection is made. While these services can and will serve two homes when convenient, often individual service can be more cost effective since they can reduce the on-site cost. If the laterals are installed concurrently with the main we would expect the cost per lateral to be in the range of \$500/each. If we ran individual services, this cost would be in the range of \$1.2 million. If we combine services to double services, where it make sense to do so, we could probably get this cost down to the \$800,000 range. When the on-site work is done, the contractor is already excavating to within 5' of the new main. Deferring the lateral installation until the on-site work is done, could probably push this cost to less than \$500,000.

I would speculate that the actual cost of services is more in the range of \$2,000,000 - \$2,500,000.

It should also be noted that vacant property does not require a lateral when the main is constructed. Laterals can be tapped onto the main, when the property is developed. While we haven't quantified this cost reduction, it may be fairly substantial.

Contingency is not a real cost number, it is money set aside to pay for additional costs that were possibly unforeseen during the design process. During this analysis, the word contingency has been thrown around liberally and has been applied inequitably between STEP (30%) and gravity sewer (10%). The potential for additional cost due to unforeseen impacts is very low for STEP. Since it is pressure main and because it is small diameter pipe, changes can be made to accommodate unknown utilities, rocks, drainage structures, etc. simply by deflecting the pipe (no fittings). Accordingly there is no cost impact. Gravity sewer, being grade dependent, has huge cost implications when unknown construction impacts are encountered. It should be understood that

contingency should be based on construction risk and therefore should be much higher for gravity sewer.

Statement 4: If we go back to MWH's 5/30/03 cost estimates, we find that the collection system itself was figured at \$32.8 million. But to compare to a STEP system, we have to include the pump stations as well. These are \$3.5 million. The combination, then, is \$36.3 million.

The need for pump stations in pressure systems is determined by the ability of the individual on-site pumps being utilized. Orenco utilizes a multi stage wastewater pump specifically designed and constructed for this application. The shut-off head approaches 240'. Additionally, because solids are removed from the wastewater stream, pipes can be liberally oversized to reduce pressure loss within the pipe. We do not anticipate the need for any lift stations in a community of this size as all of the pumps will pump directly to the point of treatment. Accordingly the capital cost and O&M costs are not applicable.

Statement 5: Clearly, there appears to be a tremendous cost saving from STEP. But any such comparison as this has to include the property owner's cost as well.

At no time has any analysis of wastewater for Los Osos considered the varied cost models between STEP and gravity. In fact, every effort has been made to place STEP into the same model as gravity sewer. The inherent problem with gravity sewer is the high up-front cost. That is because the bulk of the cost is in the collection main. Additionally, all of the O&M costs are generally attached to the main and the lift stations. Accordingly, to keep O&M costs down, on a per customer basis, customers must be quickly be connected so that they start sharing the cost. When customers do not connect, existing customers will pay an inequitable share of O&M costs.

There is this misconception that gravity sewers have low O&M costs. People need to understand that gravity sewers have a low *initial* O&M cost. Aging gravity sewer systems are becoming problematic in this Country, and the real costs are becoming more documented. The average age of a gravity system in the Unties States in a little more than 30 years. As the system ages, I&I (inflow & infiltration of extraneous water), expensive R&R (Renewal and Replacement), expensive system failures, SSO's (Sanitary Sewer Overflows), on-site lateral replacement, all have potentially huge cost implications. Growing communities are often able to keep these costs somewhat in-check to their customers by the addition of lower maintenance new gravity systems that help distribute the impact of aging systems to more customers. Small communities, in particular, that have aging gravity systems, without developing areas, are starting to experience significant financial hardships with regards to O&M of gravity sewer systems. Most often these communities are asking for financial assistance from State and Federal Agencies. The gap between the financial needs and financial assistance available to help defray costs is trending towards a larger financial gap.

Despite this, gravity sewer continues to get a free pass in most analysis. What I mean by this is that the Consulting Community continues to preach the benefits of new pipe materials and they get away with quoting costs from new gravity sewer systems. If gravity sewer were to be placed under the scrutiny that emerging systems such as STEP receive, people would be horrified. I've attached an interesting paper for anyone that is interested.

By comparison O&M costs are typically quoted as high end cost. No consideration is given to the fact that these systems have extremely low maintenance cost during the initial 7 to 10 years of operation. Pumps last 20 years, tanks pump-outs are 10 years and the call-out rate is probably in the range of one call-out per 10 years. Does 500 call-outs per year at 30 minutes per call over the initial 7 years sound expensive, complicated or excessive? O&M cost for STEP are normally quoted in terms of average cost and are inclusive of R&R and tank pump-outs. Do you think that \$450,000 includes R&R of lift Stations, manholes and gravity sewer mains.

The on-site capital cost for STEP can be a deferred cost. What this means is that while on-site infrastructure can be installed as part of the main project, there are also opportunities to defer the installation until service is required. This deferral of cost and infrastructure, creates opportunities for alternative financing, lower initial financing and more ability to focus cost assistance to those in financial need. For STEP systems, O&M costs are extremely low for the collection mains and are almost entirely associated with the on-site infrastructure. Accordingly, the O&M cost does not become an issue until you have a paying customer. Unlike gravity sewer, this keeps O&M costs in line with revenue being generated. The homeowner does not have any direct on-site O&M costs with the exception of electrical costs estimated to be in the range of \$12.00 annually. The system is intended to be publicly owned with the monthly bills being charged just like any other centralized sewer system. In fact, the homeowner has less liability, since they only own a very short lateral to the tank rather than being

responsible for a long lateral extending to the property line. Lateral replacement is costing homeowners in older systems anywhere from \$3,000 to \$20,000 to replace when they fail.

Statement 6: In the Project Report, MWH estimates homeowners' cost at \$9.4 million for the lateral, decommissioning septic tank, etc. This included 20% for contingency and 2% for inspection, etc. For comparison purposes, it would probably be reasonable to figure only about \$1000 would be for the lateral itself.

The on-site portion of the lateral is typically a 1" pressure pipe and is generally installed with a walk-behind trencher. We would consider the on-site costs that were stated to be more than inclusive of this small cost. The costs for the lateral extension from the main has already been discussed.

Statement 7: In the STEP system, there would be about \$1500 for the pump, chamber, controls, separate electrical service, etc. With the \$1000 for the lateral, this is \$2500/home or \$12 million for the project. This would raise the STEP system to \$32.2 million. Total at this point is \$45.7 million for the current project.

We've already discussed the methodology for installation of the main. We should add that the main can be installed trenchless or by open-cut. Directional boring is utilized as the trenchless method for installing small diameter pressure pipe and is utilized when logistics or cost impacts such as driveways, roadways, trees, etc make open trenching a more expensive. We provided the County with a bid tab of a STEP project that was entirely directional bored and the cost worked out to slightly less than \$40/ft inclusive of laterals (both sides) and all taxes, overhead and profit. The pipe size was larger than we would generally need in Los Osos, so the cost is probably conservative. We have also provided the County with a bid tab of a project that was completely trenched that came in at a cost slightly below \$20/ft. 230,000 feet of pipe at \$40/ft is less than \$6,000,000. While we don't necessarily suggest that this is the number that should be utilized for analysis, we would suggest that the high end costs stated in the fine screening report should be carefully scrutinized. We believe that the Ripley estimates were a good conservative estimate of STEP costs for budgetary consideration. Typically, on-site installations costs are available but have ranged from \$3,500 to \$7,500 inclusive of all materials, labor, taxes and profit. This work includes connection to the main. Additionally we would consider \$500 per home to be a reasonable cost to provide a dedicated 110V circuit from the home. The fine screening uses electrical drops from the public right-of-way with SRF requirements as justification. At \$6,000 per home, we would speculate the overall on-site cost, based on typical costs we see, is in the range of \$30,000,000. Again this is a typical cost, not a budgetary conservative cost.

Statement 8: But, next comes the part you won't like. MWH figured it would cost about \$20 million to replace all of the septic tanks. Dana Ripley agreed. Experts in the field (Bill Bownes, MWH, Dana Ripley, for starters) all will say the septic tanks should be replaced. Bownes has designed over 100 STEP or STEG systems and 100% of the septic tanks were replaced in all but 3 of these projects.

STEP programs have been done where the existing tanks have been utilized. Generally, there are some inherent risks in adopting this methodology because existing septic tanks are generally sized smaller than a STEP tank. Additionally, it is rare to see water-tight septic tanks that are build to the quality that we mandate for our STEP installations. If we were to consider utilization of the existing tank we could probably anticipate a savings in the rang of \$1500 per connection. This savings however, would probably translate into higher maintenance costs, less efficient solids digestion in the tanks, higher potential of I&I and more likelihood of tank failures (structural).

We would also recommend that tanks be replaced. We would consider the costs that have been discussed to be inclusive of tank replacement.

Tank replacement is not as cumbersome as the fine screening would lead you to believe. The analysis shows the new tanks being installed in an adjacent location to the existing tank with decommissioning of the existing tank. It also states that all new tanks will be installed in the front yard. We would suggest that this method causes too much disruption to the property and incurs unnecessary costs for additional plumbing ,excavation and sodding. We would suggest that it is more appropriate to remove the existing tank and replace it with a new tank in the same location. Excavated material, being less, is placed on a tarp to avoid impact to the existing sod and plywood be utilized under the equipment tracks to avoid rutting. The existing tanks can be removed and staged at a common location for crushing and possible reclamation as aggregate or structural fill.

We have heard that the impact to make a STEP connection will be more than gravity. We do not see this as a true statement. The STEP connection will require excavation of the existing tank, backfilling and restoration. The

service line can be trenched with a walk-behind trencher with very little impact or restoration required. By comparison a gravity connection requires excavation of the existing tank with removal, or crushing in-place being the most common decommissioning techniques. Plumbing must then be installed from the home to a typical depth of 4" at the property line. This trench is typically at least 12" wide and requires compaction and restoration. Also, a gravity connection will often traverse a property to connect to a common why shared with a neighbor.

Having stated our preference for tank replacement, there will still be opportunities that we would consider appropriate for utilization of the existing tank. Typically, multi-family complexes and commercial buildings have liberally sized septic tanks that are of better structural quality. These installation should be evaluated on a case-by-case basis for consideration of utilizing the existing tank. Also, the fine screening states that rear lot septic tanks will be pumped to the front lot location with a grinder pump. The logic applied, is that these tanks may be inaccessible for the equipment necessary to install a new tank. It is important to note that new excavation equipment is available to get into every tight locations. Also, fiberglass tanks can be utilized to avoid the need for large equipment capable of lifting a heavy tank. After these options are considered, and if it the existing tank is still deemed inaccessible, we would recommend installation of a STEP package into the existing tank. We would never recommend that the O&M cost for the additional grinder pump (\$600/yr) be incurred, nor would we recommend that the capital cost (\$2500-\$5500) be incurred for the grinder pump and alternative tank location. Incidentally, the cost of 200 grinder pumps that were identified in the gravity sewer analysis do not appear to be adequately quantified in terms of cost.

Statement 9: The problem is the limited hydraulic capacity of the STEP collection system. When you change from the 8" conventional collector to a 3" STEP collector, there is a reduction of 86% in hydraulic capacity. This is pretty gross. Particularly since septic tanks are not really made to be watertight to infiltration from above. Water in the soil above from rain will find its way into (and out of) the tank through the lids (particularly if tree roots have entered) and the crack between the sides and the top. In a STEG system, essentially every tank, at about the same time, will put a few quarts of effluent into the collection system. Even though each tank does not add much, the combination of all tanks, at the same time, will overwhelm the system.

This reply has already touched on hydraulic capacity. It is true that an 8" gravity main typically can hold much more capacity than is necessary. One should consider however, that aging gravity sewers have generally eaten up this capacity when I&I overcomes the system. I&I, in many aging systems, can easily be a multitude of time higher than the average daily flow from homes. In fact SSO's (Sanitary Sewer Overflows) are common in gravity mains that have excessive capacity for residential flow.

To state that a gravity main has 86% more capacity than a 3" STEP main is incorrect. One pipe is gravity flow, laid at minimum velocities and one is a pressure pipe. As already stated, the gravity sewer pipe has about 400 gpm capacity when flowing full at 2ft/sec (capacity and flow velocity can be increased with greater fall, but of course capital costs will also increase). By comparison a 3: pressure pipe can handle flows of 5ft/sec on average. Also, higher velocities can be handled on an intermittent basis during periods of higher flow rates. The capacity of a 3" pipe at 5ft/sec is around 100 gpm. Also, intermittent flow up to 150 gpm probably wouldn't cause much concern. The critical point however, is that peak flow during rain events will never approach that of a gravity system. Accordingly, STEP pipes can be designed much closer to actual flows that gravity sewer can ever be. Additionally, with STEP, you can oversize the pipe for additional capacity with little or no detrimental effects. Again, since STEP doesn't have solids to settle out, flow velocities are not as critical, and oversizing can be more easily considered. If an 8" STEP main were utilized, we would generally estimate the capacity to be in the range of 800 gpm, twice that of gravity sewer.

Statement 10: It is virtually impossible to analyze the reaction of a STEP system. The infiltration will go into the pump chamber. Typically, this will store effluent, and when the float switch says it is full, pump out 50 gallons. The infiltration will cause more pumps to "fire" than would normally be the case. And each "firing" will put 50 gallons into the system.

By replacing the on-site septic tank, we are installing an engineered tank and pump, designed to be water-tight. During construction, each installation is tested to show it is water-tight. If for some reason, the tank is compromised and infiltration did occur, it can be detected by checking pump-run times. If you want the system to be absolutely water-tight, telemetry can be added to each on-site system that will notify the operator of extraneous flow into the tank.

It is not impossible to analyze a STEP system. In fact the lower impact from I&I and the fact that it is pressurized

with a common pump from each residence makes modeling a STEP system fairly easy. Water systems are modeled the same way. By comparison, I would venture that gravity sewers can be much more problematic to accurately model because of extraneous factors such as I&I.

Theoretically, in an event that more pumps "fire" than was expected during design, pumps further from the discharge would hit shut-off head. This means that they do not have ample pumping capability to pump against the existing line pressure. If this would ever occur, the pumps closer to the discharge would still pump and would eventually reach the pump-off level. As they shut-off, line pressures would drop and adjacent pumps would be allowed to activate. STEP tanks that were locked against existing line pressures would alarm to tell the operator that they have not pumped. However, each installation has more than a days storage before they would ever reach overflow. Eventually all pumps will discharge.

Statement 11: But, this is not the kind of thing that people like you and I can have a good feel for. That is why experts were born. And, their feeling is probably one based on experience – not theoretical concepts. If the \$20 million is added to the STEP system, we end up at \$52.2 million for the STEP system and \$45.7 million for the current.

Experts have weighed in and largely have been ignored. Everything that has been presented is generally theoretical. I would like to think that Orenco, with 25 years of experience in STEP and more than 150,000 STEP systems in service would qualify as an expert. Additionally, having spent 9 years as the Technical Services Manager for the largest and oldest STEP system in the World, probably validates my statements. In that position I salvaged a failed conventional sewer program (\$600,000,000) and managed to satisfy the State with a 5000 property STEP initiative. I also constructed STEP to more than 14,000 properties in an area that had been stalled for 20 years because property owners could not develop without sewer.

Statement 12: It is also important to point out that the relatively small (\$1.5-2K/home) homeowner's cost for the regular system would zoom to something like \$6.5-7K. And this has to be borrowed at a rate 2-3 times higher than the SRF loan. Any consideration for the cash-strapped homeowner would rule against this increase.

We believe that the on-site cost can be handles in a multitude of ways that can make it affordable to the homeowner. Also it allows for those that are experiencing financial hardship to be identifies with assistance tailored to their ability to pay. The problem is that all typical financing is tailored toward the conventional model. We would state that this is proving to be a highly inefficient way to allocate public assistance such as SRF loans or grants. Orenco has continued to state that an RFP allows teams to show a complete solution with bottom-line costs and with explanation of how a different expenditure model can be leveraged to assist homeowners.

Statement 13: One further word. To take a chance and go against the expert advice might work out. Then again, it might not. If not, the cost of the fix will be astronomical. And no one can be held accountable except the owner (CSD, city or whatever) because they overrode the advice of the engineer.

STEP systems have been in existence for 35 years. Orenco has been installing STEP systems for 25 years. STEP is not a new system as it is so often painted. Orenco has stated that private operations can be included in a proposal if they have concerns such as the ones you have stated.

Statement 14: There are no magical systems, Al. I am truly sorry. But that is a fact.

The message that we have always shared is that septic abatement is not a one-system-fits-all solution. Gravity sewer, despite statistical data that shows that smaller communities are struggling to maintain, gets placed a free pass in virtually every evaluation. The decisions on technology most often are placed in the hands of consultants who's fees are based on capital cost. We firmly believe that an RFP for a design/build/finance project is truly the best method to assure that the best solution is properly aired, evaluated and initiated. While an RFP affords competing technologies to show what they can achieve it in no way diminishes the ability of conventional approaches to show they are the better choice.

Thank you fro the opportunity to address these concerns.

Respectfully,

Michael L. Saunders
National Accounts Leader
Orenco Systems, Inc.

msaunders@orenco.com

Office 1-800-348-9843 (Extension 443)
Cell 941-276-8586
Fax 941-764-6069

Visit our web site at www.orenco.com

From: abarrow [mailto:abarrow@sbcglobal.net]
Sent: Friday, August 24, 2007 1:51 AM
To: mike saunders
Cc: al barrow
Subject: :Collection Comparisons, 3 years ago and the myth still stands

hello Mike;

If you have a few minutes you could print between the lines in red to clear some of this up.

Al Barrow, President, Citizens for Affordable and Safe Environment & Coalition for Low Income Housing

----- Original Message -----

From: [Gordon Taylor](#)
To: [Al Barrow](#)
Sent: Friday, August 27, 2004 7:12 PM
Subject: Collection Comparisons

Al,

It is interesting to play with the numbers for a collection system. You never can tell where you will end up.

First of all, your system. Even though you often refer to it as STEP/STEG, if the collectors are a uniform 3 to 4 feet below the surface and follow the contour of the ground, then the collectors must be pressurized. Water will not flow up hill (to follow the contour of the ground) unless it is pumped. So you are talking about a pure STEP system. There is no part of it that is STEG.

I make the distinction, because the 2000 Oswald Report, was a hybrid. Bill Bownes felt that the lowest lying parts of the Community should be STEP. He was planning to use shallow trenching for these. This system would cover 30%. The 70%, in Bownes' design, would be STEG. As you know, STEG systems require a slightly greater minimum fall than a conventional gravity sewer. So STEG collection systems will go slightly deeper into the ground than conventional.

So, in your STEP system, the 204,000 linear feet of collectors would cost \$3.4 million. There would be about 4800 laterals that would have to be hooked up. Using Tidwell's figure of \$3500, this would come to about \$16.8 million. The combination would be \$20.2 million. I doubt that the figures include a 10% contingency, inflation escalator, etc. but let's go with that.

If we go back to MWH's 5/30/03 cost estimates, we find that the collection system itself was figured at \$32.8 million. But to compare to a STEP system, we have to include the pump stations as well. These are \$3.5 million. The combination, then, is \$36.3 million.

Clearly, there appears to be a tremendous cost saving from STEP. But any such comparison as this has to include the property owner's cost as well.

In the Project Report, MWH estimates homeowners' cost at \$9.4 million for the lateral, decommissioning septic tank, etc. This included 20% for contingency and 2% for inspection, etc. For comparison purposes, it would probably be reasonable to figure only about \$1000 would be for the lateral itself.

In the STEP system, there would be about \$1500 for the pump, chamber, controls, separate electrical service, etc. With the \$1000 for the lateral, this is \$2500/home or \$12 million for the project. This would raise the STEP system to \$32.2 million. Total at this point is \$45.7 million for the current project.

But, next comes the part you won't like. MWH figured it would cost about \$20 million to replace all of the septic tanks. Dana Ripley agreed. Experts in the field (Bill Bownes, MWH, Dana Ripley, for starters) all will say the septic tanks should be replaced. Bownes has designed over 100 STEP or STEG systems and 100% of the septic tanks were replaced in all but 3 of these projects.

The problem is the limited hydraulic capacity of the STEP collection system. When you change from the 8" conventional collector to a 3" STEP collector, there is a reduction of 86% in hydraulic capacity. This is pretty gross. Particularly since septic tanks are not really made to be watertight to infiltration from above. Water in the soil above from rain will find its way into (and out of) the tank through the lids (particularly if tree roots have entered) and the crack between the sides and the top. In a STEG system, essentially every tank, at about the same time, will put a few quarts of effluent into the collection system. Even though each tank does not add much, the combination of all tanks, at the same time, will overwhelm the system.

It is virtually impossible to analyze the reaction of a STEP system. The infiltration will go into the pump chamber. Typically, this will store effluent, and when the float switch says it is full, pump out 50 gallons. The infiltration will cause more pumps to "fire" than would normally be the case. And each "firing" will put 50 gallons into the system.

But, this is not the kind of thing that people like you and I can have a good feel for. That is why experts were born. And, their feeling is probably one based on experience – not theoretical concepts. If the \$20 million is added to the STEP system, we end up at \$52.2 million for the STEP system and \$45.7 million for the current.

It is also important to point out that the relatively small (\$1.5-2K/home) homeowner's cost for the regular system would zoom to something like \$6.5-7K. And this has to be borrowed at a rate 2-3 times higher than the SRF loan. Any consideration for the cash-strapped homeowner would rule against this increase.

One further word. To take a chance and go against the expert advice might work out. Then again, it might not. If not, the cost of the fix will be astronomical. And no one can be held accountable except the owner (CSD, city or whatever) because they overrode the advice of the engineer.

There are no magical systems, Al. I am truly sorry. But that is a fact.

From: "albarrow" <albarrow@sbcglobal.net>
To: "Gail McPherson" <ronmcperson@earthlink.net>; "Jim Tkah" <jimtk@charter.net>; "Lisa Schicker" <lisaschicker@charter.net>; <truehr@oboe.aix.calpoly.edu>; "Chuck Cesena" <clcesena@charter.net>; "Steven Senet" <stevensenet@yahoo.com>
Cc: <albarrow@sbcglobal.net>
Sent: Wednesday, March 02, 2005 9:15 AM
Attach: cap_168167.jpg
Subject: \$21,900,000

Hello,

Here is a great picture of an RO plant. Because San Jaun has an ocean outfall (assumption) which we won't trucking brine will add 60x \$1000.00 gallon brine tankers to Ventura a day that adds up to \$21,900,000.00 a year. For our picture gallery this one is easy to understand their is no room on the Tri-W for this.

This is a deffered expense for providing drinking water for buildout.

Thank You,

Al Barrow C.A.S.E.



Downtown San Francisco Groundwater Basin

- Groundwater Basin Number: 2-40
- County: San Francisco
- Surface Area: 7,600 acres (12 square miles)

Boundaries & Hydrology

The Downtown San Francisco groundwater basin is located on the northeastern portion of the San Francisco peninsula, and is one of five basins in the eastern part of San Francisco each separated from the other by bedrock ridges (Phillips et.al. 1993). The groundwater basin is made up of shallow unconsolidated alluvium underlain by less permeable bedrock within the watershed located east and northeast of the Twin Peaks area including Nob and Telegraph Hills to the north and Potrero Point to the east, as well as most of the downtown area. Bedrock outcrops along much of the ridge form the northeastern and southern basin boundaries. In general, groundwater flow is northeast, following the topography. Average precipitation within the basin is approximately 24 inches per year.

Hydrogeologic Information

Water Bearing Formations

The primary water-bearing formations are comprised of unconsolidated sediments and include alluvial fan deposits, beach and dune sands, undifferentiated alluvium and artificial fill. The oldest of these sediments are Pleistocene in age (Knudsen et.al. 2000). Water-bearing formations are thickest beneath the central and northeastern portion of the basin (between Interstate 80 and Chinatown) where bedrock is encountered at less than 300 feet below ground surface. In much of the basin bedrock is encountered at less than 200 feet below ground surface (Phillips et.al. 1993). Bedrock underlying the basin consists of consolidated rocks of the Franciscan Complex (Schlocker 1974).

Groundwater Recharge

Groundwater recharge to the groundwater basin occurs from infiltration of rainfall, landscape irrigation, and leakage of water and sewer pipes. Recharge to the Downtown San Francisco groundwater basin was estimated to be 5,900 ac-ft per year. Recharge due to leakage from municipal water and sewer pipes accounted for about half of the total recharge of groundwater in the San Francisco area (Phillips et.al. 1993).

Groundwater Level Trends

No published water level data showing long-term groundwater level trends was found for the basin, however measurements taken from 1988 to 1992 indicate little to no seasonal fluctuations in groundwater levels.

Groundwater Storage

No published groundwater storage information was found for the basin.

Groundwater Budget

A hydrologic routing model was developed by the USGS to estimate groundwater recharge on the San Francisco peninsula. The model was based on land use zones in the region. A detailed discussion of the groundwater budget can be found in the report by Phillips et.al. (1993).

Groundwater Quality

Characterization. No published groundwater quality information was found for the Downtown basin, however limited water quality data for the surrounding basins is available and shows that the general character of groundwater for all basins beneath the entire San Francisco peninsula is similar (Phillips et.al. 1993). Groundwater beneath the San Francisco peninsula is a mixed cation bicarbonate type, and considered generally "hard" (CaCO₃ concentrations between 121 and 180 mg/L). Concentrations of most major dissolved constituents are within the guidelines recommended by the U.S. EPA. Total dissolved solids vary from about 200 to over 700 ppm. Elevated concentrations of nitrate and chloride are common, especially at shallower depths (Phillips et.al. 1993).

Impairments. Groundwater within the Downtown basin is subject to high concentrations of nitrates and elevated chloride, boron and total dissolved solids concentrations. High nitrate levels and are attributed to groundwater recharge from sewer pipe leakage and possibly to fertilizer introduced by irrigation return flows. Elevated chloride and TDS levels are most likely due to a combination of leaky sewer pipes, historic and current seawater intrusion, and connate water (Phillips et.al. 1993).

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: N/A	Average: N/A
Total depths (ft)		
Domestic	Range: N/A	Average: N/A
Municipal/Irrigation	Range: N/A	Average: N/A

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
	Groundwater Levels	N/A
	Water Quality	N/A

Basin Management

Groundwater management:

Water agencies

Public	San Francisco Water Department
Private	

References Cited

- Blake, M.C., Graymer, R.W., and Jones, D.L. 2000. *Geologic Map and Map Database of Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California*. U.S. Geological Survey Miscellaneous Field Studies MF 2337, Online Version 1.0. (available online at <http://geopubs.wr.usgs.gov/map-mf/mf2337/>).
- Bonilla, M.G. 1998. Preliminary geologic map of the San Francisco South 7.5' quadrangle and part of the Hunters Point 7.5' quadrangle, San Francisco Bay area, California: A digital database. U.S. Geological Survey Open-File Report 98-354. (available online at <http://wrgis.wr.usgs.gov/open-file/of98-354/>)
- Knudsen, K.L. et.al. 2000. Preliminary Maps of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California: A Digital Database. U.S. Geological Survey Open-File Report 00-444. (available online at <http://geopubs.wr.usgs.gov/open-file/of00-444/>).
- Knudsen, K.L., Noller, J.S., Sowers, J.M., and Lettis, W.R. 1997. *Quaternary Geology and Liquefaction Susceptibility, San Francisco, California 1:100,000 Quadrangle: A digital database*. U.S. Geological Survey Open-File Report 97-715. (available online at <http://wrgis.wr.usgs.gov/open-file/of97-715/>)
- * Phillips, S.P., Hamlin, S.N., and Yates, E.B. 1993. *Geohydrology, Water Quality, and Estimation of Ground-water Recharge in San Francisco, California, 1987-92*. U.S. Geological Survey Water-Resources Investigations Report 93-4019. Prepared in cooperation with the San Francisco Water Department. 69 p.
- Schlocker, Julius. 1974. *Geology of the San Francisco north quadrangle, California*. U.S. Geological Survey Professional Paper 782. 109p.

* Denotes that the reference is a key one for the basin

Errata

Changes made to the basin description will be noted here.

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT
STAFF: Michael T. Chee
MEETING DATE: September 15, 2004

ITEM: 8

SUBJECT: **City of Petaluma, Water Pollution Control Plant, Petaluma, Sonoma County –**
Hearing to Consider Mandatory Minimum Penalty for Discharge of Partially
Treated Wastewater to Waters of the State

CHRONOLOGY: October 2000 -Mandatory Minimum Penalty (MMP)
February 2002 -MMP
August 2003 -MMP

DISCUSSION: The City of Petaluma Water Pollution Control Plant violated of its effluent limits on 35 occasions during the period between January 1, 2000, and April 30, 2004. Twenty-nine of these violations are subject to mandatory penalties for a total penalty of \$87,000.

Petaluma has waived its right to a Water Board hearing (Appendix B), and intends to undertake a supplemental environmental project (SEP). The proposed SEP is for the Wetland Habitat Studies Program (WHSP). WHSP will provide students and the general public with opportunities to tour and study upland habitats, ponds, freshwater marshes, tidal wetlands, and mudflats at Shollenberger Park that is located adjacent to the Petaluma Marsh and River. SEP funds will also assist the Casa Grande High School in developing a native plant nursery to provide plants for student planting within the Petaluma watershed. The attached complaint proposes civil liability in the amount of \$87,000, of which \$51,000 will be suspended to fund the SEP.

RECOMMEN-
DATIONS: *No action required.*

File No.: 2149.4006 (MTC)

Appendix: A. Complaint No. R2-2004-0041

Appendix: B. Signed waiver

From: "abarrow" <abarrow@sbcglobal.net>
To: "piper reilly" <kismetwest@sbcglobal.net>
Cc: "Lois Capps" <greg.haas@mail.house.gov>; "Congresswoman Lois Capps" <ca23ima@mail.house.gov>; <governor@governor.ca.gov>; <jlenthall@co.slo.ca.us>; "jim patterson" <jpatterson@co.slo.ca.us>; "katcho achadjian" <kachadjian@co.slo.ca.us>; "harry ovitt" <hovitt@co.slo.ca.gov>; "Bruce Gibson" <bgibson@thegrid.net>; <jwaddell@co.slo.ca.us>; "John diodati" <jgdiodati@co.slo.ca.us>; <pogren@co.slo.ca.us>; "al barrow" <abarrow@sbcglobal.net>; "Tom Ruehr" <truehr@calpoly.edu>; "Dana Ripley" <ripac@comcast.net>; <bcagle@orenco.com>; "mike saunders" <msaunders@orenco.com>; "Phil veneris" <phil.veneris@fire.ca.gov>; <Assemblymember.Blakeslee@assembly.ca.gov>; "Bill" <bill.garfinkel@sbcglobal.net>; <achill29@hotmail.com>
Sent: Monday, November 12, 2007 1:57 PM
Subject: ABAG The Real Dirt on Liquefaction - Pipelines.htm

Hello Piper and all officials;

We are on an earthquake fault. If you put the sewer water on Broderson after treatment a very large water mound will form (purposely) a very large liquifaction zone which, on that slope turns the unlerlain soils to jelly! Slippage of house foundations could happen and gravity sewer pipes will have huge pressure separating the joints. In the December 2003 Loma Prieta earthquake the central coast area did not inspect the sewer mains for leaks.

"In earthquakes, utility pipelines leak and break. The most vulnerable pipelines are typically those carrying sewage because they are made of the most brittle materials and do not have sealed joints. The next most vulnerable are water pipelines. Some pipelines carrying natural gas are also vulnerable, but utilities such as Pacific Gas & Electric are upgrading and replacing vulnerable pipelines as described below."

"ABAG, in examining pipeline breakage statistics from the Loma Prieta earthquake, concluded that the damage to pipelines in areas mapped as highly susceptible to liquefaction experienced significantly greater damage than areas with lower susceptibility, given similar shaking levels."

Not only will gravity sewer lines but water mains and gas lines will be act risk from earthquake liquifaction conditions as the Broderson effluent mound will be 160 deep on a 7% slope overlayong the Los Osos Strand B fault that runs under the fire department (damaged then) without liquefaction conditions from Broderson. Any gravity design needs to budget the repair cost to those infrastructures. This is earth quake country and we are sitting on a very big fault.

AL Barrow



What Happens? Utility Pipelines Leak

Excerpts From "The REAL Dirt on Liquefaction"

What Happens?

In earthquakes, utility pipelines leak and break. The most vulnerable pipelines are typically those carrying sewage because they are made of the most brittle materials and do not have sealed joints. The next most vulnerable are water pipelines. Some pipelines carrying natural gas are also vulnerable, but utilities such as Pacific Gas & Electric are upgrading and replacing vulnerable pipelines as described below.

Why Does This Happen?

Utility pipelines can leak or break due to the passage of earthquake waves through the soil or due to permanent ground displacement (such as faulting, landsliding or liquefaction). Even though areas susceptible to liquefaction are a relatively small percentage of the areas in which pipelines are located, these liquefaction-susceptible areas have contained a disproportionate number of breaks.

What Were the Pipe Damage Statistics in the Loma Prieta Earthquake?

ABAG, in examining pipeline breakage statistics from the Loma Prieta earthquake, concluded that the damage to pipelines in areas mapped as highly susceptible to liquefaction experienced significantly greater damage than areas with lower susceptibility, given similar shaking levels.

First, the number of water pipeline leaks per mile of water pipeline in areas mapped as having high and very high susceptibility to liquefaction was four-to-six times greater than outside of these areas, given equivalent shaking intensities.



Example of main sewage treatment conduit rupture in the 1995 Kobe Earthquake.
Source - Kobe Geotechnical

Second, the number of leaks per mile of natural gas pipelines was three-to-eleven times greater within the areas mapped as having high and very high susceptibility than outside of these areas, given equivalent shaking intensities. The gas pipeline leaks were predominately in cast iron and other older pipelines that are known to be vulnerable to earthquake effects.

Much of the pipeline damage occurred in areas where no surface expression of liquefaction was observed. Thus, these statistics show increased damage in areas mapped as being susceptible to liquefaction; they do not

***Collection, Earthquake
Engineering Research Center,
Univ. of California, Berkeley***

indicate that the damage was necessarily due to liquefaction. See Appendix C for more information.

Note that no damage surveys were conducted of sewer lines as a result of the Loma Prieta earthquake, so no data on statistical damage to these facilities are available. However, as stated above, sewer lines probably had more damage than water lines because they are more brittle and do not have sealed joints.

***Utilities and the Seismic
Hazard Mapping Program
of the California Division of
Mines and Geology (CDMG)***

The following excerpt from CDMG Special Publication 117, Chapter 6 (1997) notes the concern of that organization for pipeline damage in areas subject to liquefaction:

To date, most liquefaction hazard investigations have focused on assessing the risks to commercial buildings, homes, and other occupied structures. However, liquefaction also poses problems for streets and lifelines- problems that may, in turn, jeopardize lives and property. For example, liquefaction locally caused natural gas pipelines to break and catch fire during the Northridge earthquake, and liquefaction-caused water line breakage greatly hampered firefighters in San Francisco following the 1906 earthquake. Thus, although lifelines are not explicitly mentioned in the Seismic Hazards Mapping Act, cities and counties may wish to require investigation and mitigation of potential liquefaction-caused damage to lifelines.

***Pg&E's Gas Pipeline
Replacement Program
(GPRP)***

Beginning in 1985, PG&E undertook a 25-year, \$2.5 billion program, known as the Gas Pipeline Replacement Program (GPRP). As a result of the GPRP, many pipeline upgrades were installed both prior to and following the Loma Prieta earthquake. These upgrades are continuing. The newer pipelines are significantly less vulnerable to earthquake effects, including liquefaction, differential settlement, violent shaking, and ground strain, than the older types of pipe installed 50 - 100 years ago.



Gas pipelines being replaced in San Francisco
 Source - W. Savage, PG&E

New Guidelines for Pipeline Systems Are Being Developed

In response to the lack of a national code for pipeline systems, the American Lifelines Alliance (ALA) is developing two guideline documents:

1. on the design of water transmission systems to resist earthquake hazards, including liquefaction, and
2. an Appendix to the American Society of Mechanical Engineers (ASME) B-31 Piping Codes for the design of better performing buried pipelines in earthquakes, not just water pipelines.

The projects are being funded by the Federal Emergency Management Agency (FEMA) under a cooperative agreement with the American Society of Civil Engineers (ASCE). Both of these documents should be available in early 2001 and will be able to be obtained from ASCE. Contact Thomas McLane, tmclane@asce.org. For further information on ALA, go to - <http://www.americanlifelinesalliance.org/>



ABAG, the Association of Bay Area Governments, is the regional planning and services agency for the nine-county San Francisco Bay Area. The liquefaction hazard map information was last updated by ABAG in October 2003.

jbp 10/16/03

**PROPOSED REVISIONS TO THE COASTAL ZONE LAND USE
ORDINANCE TO RUN CONCURRENTLY
WITH THE ESTERO AREA PLAN UPDATE
Public Hearing Draft, August 2003**

ORDINANCE NO. _____

AN ORDINANCE AMENDING TITLE 23 OF THE SAN LUIS OBISPO COUNTY CODE, THE COASTAL ZONE LAND USE ORDINANCE; SECTIONS 23.04.186, 23.05.050, 23.06.100, 23.06.106, 23.06.108 REGARDING WATER QUALITY AND DRAINAGE; SECTION 23.05.110 REGARDING ROADS AND BRIDGES; SECTIONS 23.04.200 AND 23.07.104 REGARDING ARCHAEOLOGICAL RESOURCES; SECTION 23.04.210 REGARDING VISUAL RESOURCES; SECTION 23.04.220 REGARDING ENERGY CONSERVATION; SECTION 23.04.440 REGARDING A COMMUNITY-BASED TDC PROGRAM FOR LOS OSOS; AND SECTIONS 23.01.043 AND 23.11.030 REGARDING APPEALS WITHIN UNMAPPED ENVIRONMENTALLY SENSITIVE HABITATS

The Board of Supervisors of the County of San Luis Obispo ordains as follows:

SECTION 1: Chapter 23.04 of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **adding new section 23.04.200** to read as follows:

23.04.200 - Protection of Archaeological Resources Not Within the Archaeologically Sensitive Areas Combining Designation: All development applications that propose development that is not located within the Archaeologically Sensitive Areas combining designation and that meets the following location criteria shall be subject to the standards for the Archaeologically Sensitive Areas combining designation in Chapter 23.07: development that is either within 100 feet of the bank of a coastal stream (as defined in the Coastal Zone Land Use Ordinance), or development that is within 300 feet of such stream where the slope of the site is less than 10 percent.

This amendment treats areas close to streams--that are known to have a higher likelihood of containing archaeological resources--as though they were in the Archaeologically Sensitive combining designation, without actually mapping them. Such areas would be subject to the AS combining designation standards in Chapter 23.07, as revised in the following section. In practice, new development in such areas is typically required to have an archaeological surface survey in connection with environmental review, where required by CEQA.

SECTION 2: Section 23.07.104c [Archaeologically Sensitive Areas: When a mitigation plan is required] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby **amended** to read as follows:

- b. When a mitigation plan is required.** If the preliminary site survey determines that proposed development may have significant effects on existing, known or suspected archaeological resources, a plan for mitigation shall be prepared by the archaeologist. The purpose of the plan is to protect the resource. The plan may recommend the need for further study, subsurface testing, monitoring during construction activities, project redesign, or other actions to mitigate the impacts on the resource. **Highest priority shall be given to avoiding disturbance of sensitive resources. Lower priority mitigation measures may include use of fill to cap the sensitive resources. As a last resort, the review authority may permit excavation and recovery of those resources.** The mitigation plan shall be submitted to and approved by the Environmental Coordinator, and considered in the evaluation of the development request by the **review authority** ~~applicable approval~~ body.

This amendment states the priorities for mitigation of impacts to archaeological resources, with highest priority given to avoidance. This amendment codifies what is already current practice that is consistent with the CEQA Guidelines.

SECTION 3: Chapter 23.04 of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **adding new section 23.04.210** to read as follows:

23.04.210 - Visual Resources:

The following standards apply within Critical Viewsheds, Scenic Corridors and Sensitive Resource Area (SRA) combining designations that are intended to protect visual resources, as identified in this title, the Official Maps, Part III of the Land Use Element, or the area plans of the Local Coastal Plan.

- a. Applicability of standards.** The following standards apply to proposed land divisions and residential and residential accessory structures (including water tanks), agricultural and agricultural accessory structures, commercial structures, pipelines and transmission lines, public utility facilities, communications facilities, and access roads that are required by the Coastal Zone Land Use Ordinance to have a land use permit, except that the following are exempt from some or all of these standards:
- (1)** Agricultural accessory structures that are 600 square feet or less in area.
 - (2) Project not visible.** An exemption from the standards in the following subsections c(1), (2), (4), and (5) may be granted if documentation is provided demonstrating that the proposed structures and access roads will not be visible from any of the roads specified in the applicable area plan planning area standards for Critical Viewsheds, Scenic Corridors or SRA's

that are intended to protect visual resources. Such documentation shall at a minimum provide topographic and building elevations with preliminary grading and building plans. An exemption from the standard in subsection c(6) may be granted if the preceding documentation is provided, and if open space preservation within the Critical Viewshed or SRA is not otherwise needed to protect sensitive habitat or watershed, as identified in the area plans.

b. Permit requirement. Minor Use Permit approval, unless Development Plan approval is otherwise required by this title or planning area standards of the area plans. The land use permit or land division application shall include the following:

(1) A landscaping plan and a visual analysis that is prepared by a licensed architect, a licensed landscape architect or other qualified person acceptable to the Director of Planning and Building. The landscaping plan and visual analysis shall be used to determine compliance with the following standards.

c. Standards for Critical Viewsheds and SRAs for protection of visual resources. The following standards apply within areas identified as Critical Viewsheds or SRAs in the area plans for protection of visual resources.

(1) **Location of development.** Locate development, including accessory structures, water tanks and access roads, in the least visible portion of the site as viewed from any of the applicable roads or highways described in the applicable planning area standards in the area plans, consistent with protection of other resources. Visible or partially visible development locations shall only be considered if no non-visible development locations are identified, or if such locations would be more environmentally damaging. Visible or partially visible development locations may be approved where visual effects are reduced to an insignificant level, as determined by the review authority. Use topographic features first and vegetation second to screen development from public view.

(2) **Building visibility.** Minimize building height and mass by using low-profile design where applicable, including partially sinking structures below grade. Minimize the visibility of buildings, including water tanks, by using colors to harmonize with the surrounding environment.

(3) **Ridgetop development.** Locate structures so that they are not silhouetted against the sky as viewed from the Morro Bay estuary and applicable roads or highways described in the applicable planning area standards in the area plans, unless compliance with this standard is infeasible or results in more environmental damage than an alternative.

- (4) **Landscaping for hillside and ridgetop development.** Provide at least 80 percent screening of structures at plant maturity using native or drought-tolerant vegetation (no invasive species) as seen from applicable roads or highways described in the applicable planning area standards in the area plans, but without obstructing major public views (e.g., screening should occur at the building site rather than along a public road). Maximize use of evergreen trees and large-growing shrubs that have shapes similar to existing native vegetation. Alternatives to such screening may be approved if visual effects are otherwise reduced to an insignificant level through use of topographic features or design of structures. Provisions shall be made to maintain and guarantee the survival of required landscape screening for a period of at least five years.
 - (5) **Residential land divisions - cluster requirement.** Residential land divisions and their building sites shall be clustered in accordance with Chapter 23.04 or otherwise concentrated in order to protect the visual resources as identified in the area plans.
 - (6) **Open space preservation.** Pursuant to the purpose of the Critical Viewshed or SRA to protect significant visual resources, open space preservation is a compatible measure to support the approval of new development. Approval of an application for any land division, Minor Use Permit or Development Plan (excluding any agricultural accessory building) is contingent upon the applicant executing an agreement with the county to maintain in open space use appropriate portions of the site within the Critical Viewshed or SRA (for visual protection) that are not intended for development. Guarantee of open space preservation may be in the form of public purchase, agreements, easements controls or other appropriate instrument, provided that such guarantee agreements are not to grant public access unless acceptable to the property owner.
- d. **Standards for scenic corridors.** The following standards apply within areas identified as Scenic Corridors in the area plans for protection of visual resources.
- (1) **Setback.** Where possible, residential buildings, residential accessory structures and agricultural accessory structures shall be set back 100 feet from the edge of the right-of-way of the road along which the Scenic Corridor is established in the area plans, or a distance as otherwise specified in the area plan planning area standards. If there is no feasible development area outside of this setback, the project shall be located on the rear half of the property and shall provide a landscaping screen of moderately fast-growing, drought-tolerant plant material to provide 80 percent view coverage at plant maturity at the building site (not along the public road). A landscaping plan in accordance with the requirements of Chapter 23.04 shall be provided at the time of building permit application submittal.

- (2) **Signs.** Locate signs that are required to have a land use permit, especially freestanding signs, so that they do not interfere with vistas from the road along which the Scenic Corridor is established in the area plans.

This amendment establishes a consistent set of standards for projects located within visually sensitive areas, using language taken from existing standards in the area plans. This approach will eliminate the need to establish new, separate visual standards in each area plan and should help eliminate the variations in such standards from one area plan to another.

SECTION 4: Chapter 23.04 of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **adding new section 23.04.220** to read as follows:

23.04.220 - Energy Conservation, Including Design for Solar Orientation: The policies and guidelines for designing compact communities and energy efficient projects described in the Energy Element of the County General Plan shall be consulted for new land divisions and development.

This amendment encourages project proponents to consider incorporating into project design the energy conservation measures in the Energy Element; however, the amendment in itself does not require any specific measures.

SECTION 5.: Section 23.04.440 of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **revising and recodifying as subsection a**, and by **adding new subsection b**, to read as follows:

23.04.440 Community-Based Transfer of Development Credits Programs - Cambria.

a. Cambria.

The purpose of this subsection is to implement portions of the Cambria/Lodge Hill **Community-based** Transfer of Development Credits Program (TDC) by providing a procedure to allow simple transfers within the Lodge Hill area of the community of Cambria. Consistent with applicable planning area programs and standards of the Land Use Element, the objective of this subsection is to reduce potential buildout in sensitive areas of Lodge Hill called "Special Project Areas." Through transfer of development credits, allowable building area (expressed in square footage) for lots within a special project area may be transferred to more suitable sites within Lodge Hill. A lot from which development credits have been transferred is "retired," and loses its building potential through recordation of a permanent conservation easement or other document. A residence on a "receiver" lot may thus be developed with larger dwellings than would otherwise be allowed by planning area standards.

- (1) **a. Where allowed.** Development credit transfers shall occur only on parcels located within the Lodge Hill area (east and west) as defined by Figure 3,

Cambria Urban Area, Part II of the Land Use Element. Lots being retired for purposes of a transfer shall be located within a special project area as shown on Figure 3. In no case shall a development credit be transferred to a building site within a special project area from outside the area. Lots within a special project area may qualify for additional dwelling square footage only by retiring lots(s) within a special project area.

- (2) b. Permit Requirement.** Minor Use Permit for the proposed dwelling and site receiving the additional allowed square footage. No permit requirement for the lot to be retired into open space.
- (3) c. Required findings.** The **review authority** ~~Planning Director or applicable appeal body~~ shall not approve a Minor Use Permit for a residence to be constructed with additional square footage gained through TDC until the following findings have been made:

 - i. (1)** Adequate instruments have been executed to assure that lot(s) to be retired will remain in permanent open space and that no development will occur; and
 - ii. (2)** The “receiver” site can accommodate the proposed scale and intensity of development without the need for a variance (23.01.045), exception to height limitations (23.04.124b) or modification to parking standards (23.04.162h); and
 - iii. (3)** The circumstances of the transfer are consistent with the purpose and intent of the applicable planning area programs and standards regarding transfer of development credits.
- (4) d. Eligible purchasers of TDC's.** Owners of small lots within Lodge Hill may be allowed to construct a larger residence than would otherwise be allowed by the planning area standards of the Land Use Element through participation in the TDC program. Larger residences may be constructed on a “receiver” lot through purchase of available square footage from a non-profit corporation organized for conservation purposes.
- (5) e. Application contents.** In addition to meeting the application contents of section 22.02.033 (Minor Use Permit), an applicant proposing a TDC shall submit evidence that a preliminary agreement has been reached between the property owners and a non-profit corporation organized for conservation purposes approved by the Planning Director, including the following:

 - i. (1)** The location of the lot(s) to be retired;

- ii. ~~(2)~~ The size and approximate slope of both lots to be retired and lot(s) to receive additional square footage;
 - iii. ~~(3)~~ The method of permanent disposition of fee title of the lot(s) to be retired;
 - iv. ~~(4)~~ The type of conservation easement, deed restriction or other instrument utilized to guarantee the permanent open space of the lots(s) to be retired.
- (6) f. **Participation of a non-profit corporation required.** A TDC shall not be approved unless a non-profit corporation or public agency, organized for conservation purposes and approved by the Planning Director, participates in the TDC process. The role of the non-profit corporation may include public information and TDC program development, a source of available square footage for purchase, recordation of easements, deed restrictions or other documents, and may be responsible for final disposition of lots to be retired.

b. Los Osos.

The purpose of this subsection is to implement portions of the Los Osos Community-based Transfer of Development Credits (TDC) Program by providing a procedure to allow simple transfers between sending sites (TDCS) and receiving sites (TDCR) identified in the Estero Area Plan of the Land Use Element and Local Coastal Plan. Consistent with applicable planning area programs and standards in the Estero Area Plan, the objectives of this subsection are to help establish a greenbelt around Los Osos, clearly define the urban edge of the community, prevent urban sprawl, discourage conversion of agricultural lands, protect unique and sensitive habitat, and protect scenic qualities. Through transfer of development credits, all or a portion of the allowable density on an identified sending site may be transferred to receiving sites that are suitable for higher intensity development. A sending site or portion thereof from which development credits have been transferred is "retired," and loses its building potential through recordation of a permanent conservation easement or other document. A receiving site to which development credits have been transferred may thus be developed at a higher density or intensity than would otherwise be allowable by the Local Coastal Program.

- (1) **Where allowed.** Development credits may be transferred only to properties located within identified transfer of development credits receiving sites (TDCR) shown in the maps and/or described in the text of the Estero Area Plan of the Land Use Element and Local Coastal Plan. Properties within identified TDCRs may qualify for additional density or intensity of development only when retiring properties within identified transfer of development credits sending sites (TDCS) as shown in the maps and/or described in the text of the Estero Area Plan.

- (2) **Required findings.** The review authority shall not approve a land use permit or tentative map that proposes additional density or intensity of development through use of TDCs until the following findings are made:
- i. Adequate instruments have been executed to assure that all property to be retired will permanently remain in open space or in agricultural uses consistent with the Coastal Zone Framework for Planning, Land Use Element and Local Coastal Plan, and that no other development will occur.
 - ii. The circumstances of the transfer are consistent with the purpose and intent of the applicable planning area programs and standards regarding transfer of development credits.
- (3) **Eligible purchasers of TDC's.** Owners of properties within identified TDCRs may be allowed to develop at higher densities or intensities than would otherwise be allowable by the Local Coastal Program through participation in the Los Osos Community-based TDC program. Higher density or intensity development may be developed on a TDCR site by purchasing development credits from an identified TDCS site from a non-profit corporation or public agency organized for conservation purposes and approved by the Planning Director.
- (4) **Application contents.** In addition to meeting the application contents of Chapter 23.02 of the Coastal Zone Land Use Ordinance, an applicant proposing TDCs shall submit evidence that a preliminary agreement has been reached between the property owners and a non-profit corporation organized for conservation purposes and approved by the Planning Director, including the following:
- i. The location of the property, or portion thereof, to be retired.
 - ii. The number of development credits that are to be retired, and the number of credits, if any, that will remain on the TDCS site.
 - iii. The method of permanent disposition of fee title of the property to be retired.
 - iv. The type of conservation easement, deed restriction or other instrument used to guarantee the permanent open space or agricultural use of the property to be retired.
- (5) **Participation of a non-profit corporation required.** A TDC shall not be approved unless a non-profit corporation or public agency, organized for conservation purposes and approved by the Planning Director, participates in the TDC process. The non-profit corporation may provide public information; help develop the TDC program; purchase and sell development credits; record easements, deed restrictions or other documents; and

manage and otherwise be responsible for the final disposition of properties to be retired.

This amendment is needed to enable implementation of the community-based TDC program established as part of the Estero Area Plan update (in Chapters 6 and 7 of the draft Estero Area Plan).

SECTION 6.: Chapter 23.05 of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **adding new section 23.05.110** to read as follows:

23.05.110 - Road and Bridge Design, Construction and Maintenance:

Roads and bridges shall be designed, constructed and maintained to protect sensitive resources (such as aquatic habitat and scenic vistas) and prime agricultural soils to the maximum extent feasible; to minimize terrain disturbance, vegetation removal and disturbance of natural drainage courses; to avoid the need for shoreline protective devices; and to provide for bikeways and trails, consistent with the Circulation Element of the County General Plan. In addition, the following measures shall be implemented:

- a. Contour slopes to blend in with adjacent natural topography
- b. Replant graded areas with native vegetation
- c. Include pollution prevention procedures in the operation and maintenance of roads and bridges to reduce pollution of surface waters
- d. Apply fertilizers and nutrients at rates that establish and maintain vegetation without causing nutrient runoff to surface waters
- e. Give preference to aerial crossings of watercourses

This amendment expands upon a planning area standard in the existing Estero Area Plan by applying the standards to bridges as well as to roads, and by protecting sensitive habitat and prime agricultural soils, as well as visual resources. Additional measures are also included, such as methods to prevent water pollution. This amendment is consistent with another proposed amendment in connection with Periodic Review implementation that would allow for better protection of Environmentally Sensitive Habitat Areas by examining alternatives to locations of permitted roads, bridges and other crossings.

SECTION 7.: Section 23.04.186d(3) [Landscape plan content: Planting plan] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby **amended by adding new subsection (ix)** to read as follows:

- (ix) A note that fertilizers and nutrients are to be applied at rates that establish and maintain vegetation without causing nutrient runoff to surface waters.

SECTION 8.: Section 23.05.050b [Drainage Standards: Natural channels and runoff] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby **amended** to read as follows:

- b. **Natural channels and runoff.** Proposed projects are to include design provisions to retain off-site natural drainage patterns and, when required, limit peak runoff to pre-development levels. **To the maximum extent feasible, all drainage courses shall be retained in or enhanced to appear in a natural condition, without channelization for flood control.**

SECTION 9.: Section 23.05.050 [Drainage Standards] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby **amended by revising subsection a** [design and construction], **and by adding new subsections g, h and i** to read as follows (new subsections e and f regarding best management practices are proposed to be added through Periodic Review implementation):

- a. **Design and construction.** Drainage systems and facilities subject to drainage plan review and approval that are to be located in existing or future public rights-of-way are to be designed and constructed as set forth in the County Engineering Department Standard Improvement Specifications and Drawings. Other systems and facilities subject to drainage plan review and approval are to be designed in accordance with good engineering practices. **The design of drainage facilities in new land divisions and other new development subject to Minor Use Permit or Development Plan approval shall maximize groundwater recharge through on-site or communitywide stormwater infiltration measures. Examples of such measures include constructed wetlands, vegetated swales or filter strips, small percolation ponds, subsurface infiltration basins, infiltration wells, and recharge basins. Where possible, recharge basins shall be designed to be available for recreational use.**
- g. **Sensitive habitat and groundwater protection.** Runoff from roads and development shall not adversely affect sensitive habitat, groundwater resources and downstream areas, and shall be treated to remove floatable trash, heavy metals and chemical pollutants as necessary prior to discharge into surface or groundwater.
- h. **Impervious surfaces.** New development shall be designed to minimize the amount of impervious surfaces.

SECTION 10.: Section 23.06.100 [Water Quality] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **adding new section 23.06.104** to read as follows:

23.06.104 - Municipal Well-head Protection: Referrals:

The purpose of this section is to protect groundwater resources from contamination by proposed development.

Minor Use Permit and Development Plan applications that propose uses within one mile of a municipal well (locations of municipal wells may be shown in the area plans) that have the potential to release toxic or hazardous materials (e.g. gas stations, businesses that handle hazardous wastes) shall be referred to the County Environmental Health Division for review and appropriate recommended measures that assure protection of water quality. Recommended measures may include, but are not limited to the following:

- a. Determining the extent of areas that contribute water to municipal wells, and making further recommendations as appropriate
- b. Relocating proposed uses relative to municipal wells, especially where such uses involve the manufacture, storage or handling of hazardous materials
- c. Concentrating or clustering development relative to the location of municipal wells
- d. Reducing the density or intensity of proposed uses
- e. Limiting the amounts of potential contaminants that may be stored or handled

SECTION 11.: Section 23.06.100 [Water Quality] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **adding new section 23.06.106** to read as follows:

23.06.106 - Wastewater: On-site Sewage Disposal:

Wastewater from on-site sewage disposal systems shall not adversely affect groundwater resources or sensitive habitat.

SECTION 12.: Section 23.06.100 [Water Quality] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby amended by **adding new section 23.06.108** to read as follows:

23.06.108 - Chemical Control:

Land use permit applications that require discretionary review for projects that have potential to release toxic or hazardous materials (e.g. gas stations, businesses that handle hazardous wastes) shall include measures, and where applicable, Best Management Practices that: a) minimize the amounts of potential contaminants that may be stored or handled; b) assure proper containment and c) prevent release of contaminants into the environment. These measures and practices shall be referred to the County Division of Environmental Health for review and for recommendations that shall be implemented through the land use permit.

In general, preceding Sections 7 through 12 modify existing standards and establish new standards in order to better manage drainage and protect water quality, groundwater recharge and sensitive habitat. These amendments respond to concerns expressed by the Coastal Commission staff about the need to address non-point source pollution from development activities. These standards are in addition to the standards requiring best management practices for residential and non-residential projects that are proposed to be implemented through the Periodic Review process.

SECTION 13.: Section 23.01.043c [Appeals to the Coastal Commission, Appealable Development] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby **amended** to read as follows:

- c. **Appealable development.** As set forth in Public Resources Code Section 30603(a) ~~and this title, an action a decision~~ by the County on a permit application, **including any Variance, Exception, or Adjustment granted**, for any of the following projects may be appealed to the California Coastal Commission:
- (1) Developments approved between the ~~sea ocean~~ and the first public road ~~parallelling~~ to the ~~sea ocean~~, or within 300 feet of the inland extent of any beach (or of the mean high tide line ~~of the ocean~~ where there is no beach), whichever is the greater distance, as shown on the adopted post-certification appeals maps.
 - (2) Approved developments not included in subsection c(1) of this section that are proposed to be located on tidelands, submerged lands, public trust lands, within 100 feet of any wetland, estuary, stream, or within 300 feet of the top of the seaward face of any coastal bluff, as shown on the adopted post-certification appeals maps.
 - (3) Developments approved in areas not ~~identified~~ **included** in subsections c(1) or c(2) ~~above~~ that are located in a Sensitive Coastal Resource Area, ~~as defined in Chapter 23.11 of this title,~~ which includes:

- (i) Special marine and land habitat areas, wetlands, lagoons, and estuaries mapped and designated as Environmentally Sensitive Habitats (ESHA) in the Local Coastal Plan. **Does not include resource areas determined by the County to be Unmapped ESHA.**
 - (ii) Areas possessing significant recreational value, including any "V" (Visitor Serving designation) as shown in the Land Use Element and areas in or within 100 feet of any park or recreation area.
 - (iii) Highly scenic areas which are identified as Sensitive Resource Areas by the Land Use Element.
 - (iv) Archaeological sites referenced in the California Coastline and Recreation Plan or as designated by the State Historic Preservation Officer.
 - (v) Special Communities or Small-Scale Neighborhoods which are significant visitor destination areas as defined by Chapter 23.11 of this title.
 - (vi) Areas that provide existing coastal housing or recreational opportunities for low-and moderate income persons.
 - (vii) Areas where divisions of land could substantially impair or restrict coastal access.
- (4) Any approved development not listed in Coastal Table O, Part I of the Land Use Element as a Principal Permitted (PP) Use.
 - (5) Any development that constitutes a Major Public Works Project or Major Energy Facility. "Major Public Works Project" or "Major Energy Facility" shall mean any proposed public works project or energy facility exceeding \$100,000 in estimated construction cost, pursuant to Section 13012, Title 14 of the California Administrative Code.

The procedures established by Section 23.01.041c. (Rules of Interpretation) shall be used to resolve any questions regarding the location of development within a Sensitive Coastal Resource Area.

SECTION 14.: Section 23.11.030 [Coastal Zone Land Use Ordinance Definitions] of the Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code, is hereby **amended** to read as follows:

Environmentally Sensitive Habitat Area (Mapped ESHA). A type of Sensitive Resource Area where plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could easily be disturbed or degraded by human activities and development. They include wetlands, coastal streams and riparian vegetation, terrestrial and marine habitats and are mapped as Land Use

Element combining designations. Is the same as an Environmentally Sensitive Habitat.

Environmentally Sensitive Habitat Area (Unmapped ESHA). A type of Sensitive Resource Area where plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could easily be disturbed or degraded by human activities and development. They include, but are not limited to, known wetlands, coastal streams and riparian vegetation, terrestrial and marine habitats that may not be mapped as Land Use Element combining designations. The existence of Unmapped ESHA is determined by the County at or before the time of application acceptance and shall be based on the best available information. Unmapped ESHA includes but is not limited to:

1. Areas containing features or natural resources when identified by the County or County-approved expert as having equivalent characteristics and natural function as mapped other environmentally sensitive habitat areas;
2. Areas known to contain sensitive resources identified by appropriate resource protection agencies, such as the U.S. Fish and Wildlife Service and the State Department of Fish & Game;
3. Areas previously known to the County from environmental experts, documents or recognized studies as containing ESHA resources;
4. Other areas commonly known as habitat for species determined to be threatened, endangered, or otherwise needing protection.

The purpose of preceding Sections 13 and 14 is twofold. Section 14 adds a second type of ESHA that is usually unmapped or poorly defined on County LCP maps. Early recognition of the existence of ESHA, whether it is mapped or unmapped, is important for both proposed development and protection of the resources. This proposed change will allow for better identification and protection of Environmentally Sensitive Habitat Areas and bring the County's LCP into conformance with the Coastal Act.

Section 13 amends the Appeals section to make it clear that development proposed in an Unmapped ESHA is not appealable only because it is ESHA. However, it may be appealable for other reasons consistent with other LCP requirements.

SECTION 15.: That the Board of Supervisors has considered the initial study prepared and conducted with respect to the matter described above. The Board of Supervisors has, as a result of its consideration, and the evidence presented at the hearings on said matter, determined that the proposed negative declaration as heretofore prepared and filed as a result of the said initial study, is appropriate, and has been prepared and is hereby approved in accordance with the California Environmental Quality Act and the County's regulations implementing said Act. The Board of Supervisors, in adopting this ordinance, has taken into account and reviewed and considered the information contained in the negative declaration approved for this project and all comments that were received during the public hearing process. On the basis of the Initial Study and any comments received, there is no substantial evidence that the adoption of this ordinance will have a significant effect on the environment.

SECTION 16.: If any section, subsection, clause, phrase or portion of this ordinance is for any reason held to be invalid or unconstitutional by the decision of a court of competent jurisdiction, such decision shall not affect the validity or constitutionality of the remaining portion of this ordinance. The Board of Supervisors hereby declares that it would have passed this ordinance and each section, subsection, clause, phrase or portion thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases or portions be declared invalid or unconstitutional.

SECTION 17.: This ordinance shall become operative only upon approval without any modifications by the California Coastal Commission and upon acknowledgment by the San Luis Obispo County Board of Supervisors of receipt of the Commission's resolution of certification.

SECTION 18.: This ordinance shall take effect and be in full force on and after 30 days from the date of its passage hereof. Before the expiration of 15 days after the adoption of this ordinance, it shall be published once in a newspaper of general circulation published in the County of San Luis Obispo, State of California, together with the names of the members of the Board of Supervisors voting for and against the ordinance.

INTRODUCED at a regular meeting of the Board of Supervisors held on the _____ day of _____, 2004, and PASSED AND ADOPTED by the Board of Supervisors of the County of San Luis Obispo, State of California, on the _____ day of _____, 2004, by the following roll call vote, to wit:

AYES:

NOES:

ABSENT:

ABSTAINING:

Chairman of the Board of Supervisors,
County of San Luis Obispo,
State of California

ATTEST:

County Clerk and Ex-Officio Clerk
of the Board of Supervisors
County of San Luis Obispo, State of California

[SEAL]

ORDINANCE CODE PROVISIONS APPROVED
AS TO FORM AND CODIFICATION:

JAMES B. LINDHOLM, JR.
County Counsel

By: _____
Deputy County Counsel

Dated: _____



Drinking Water Source Assessment and Protection Program (DWSAP)

PROGRAM DOCUMENT - January 1999

Section 8.0

Vulnerability of Drinking Water Sources to Contamination

After the initial inventory of Possible Contaminating Activities (PCAs) has been completed (Section 7.0), a vulnerability analysis is conducted to determine the types of PCAs to which the drinking water source is most vulnerable by prioritizing the list of activities identified in the inventory. The analysis factors in the source and/or site characteristics that may affect the vulnerability of the source to contamination from the types of PCAs identified in the inventory.

8.1 Definition

Vulnerability: A determination of the most significant threats to the quality of the water supply that takes into account the physical barrier effectiveness of the drinking water source. The vulnerability determination also considers the type and proximity to the water supply of activities that could release contaminants.

Vulnerability, as defined in the DWSAP Program, is consistent with existing California regulations (see Section 8.4).

8.2 Vulnerability Analysis Procedures

The vulnerability analysis evaluates the types of PCAs identified in the inventory within the context of the characteristics of the source and its site. The first step in the analysis is to determine the Physical Barrier Effectiveness (PBE) for the drinking water source. The PBE can be determined using site-specific information on hydrogeology, hydrology and soils. Additional information is required depending upon whether the source is ground water or surface water.

8.2.1 Drinking Water Source and Site Characteristics

8.2.1.1 Drinking Water Source Information

The information needed to determine the Physical Barrier Effectiveness should be compiled using readily available data and reports. A minimum level of information is necessary to make the initial determination, but additional information may be useful in refining the determination.

For surface water sources, Appendix C shows the minimum water body and watershed information necessary to determine Physical Barrier Effectiveness. Most of this information can be found in the Watershed Sanitary Survey for the source.

For ground water sources, the minimum information necessary to determine Physical Barrier Effectiveness is shown in Appendix J. The information to be collected should be available from well

logs, soil survey maps, some general knowledge of the hydrogeology of the area, and well operation information.

8.2.1.2 Determination of Physical Barrier Effectiveness

The Physical Barrier Effectiveness is essentially an estimate of the ability of the natural geologic materials, hydraulic conditions, and construction features of the well or intake to prevent the movement of contaminants to the drinking water source.

A qualitative rating of low, moderate or high Physical Barrier Effectiveness (PBE), based on the drinking water source and site characteristics, is determined for each source. A simple approach to determining PBE for surface water is shown in Appendix C, and for ground water in Appendix J. In the DWSAP approach, the reviewer collects some basic information on the water body and watershed for surface water, and on the drinking water source and aquifer for ground water. This information is then evaluated with parameters that indicate the relative effectiveness of the source and site in preventing the migration of contaminants to the water supply.

In general, the intent of the Physical Barrier Effectiveness determination is to highlight the sources that have "high" or "low" effectiveness. Most sources will have "moderate" PBE. A more detailed review of the Physical Barrier Effectiveness at a site can be done during the development of a local source water protection program (see Section 11.0).

Surface Water

For surface water, the PBE evaluation considers several parameters including the size of, and detention time in, the reservoir, topography, geology, soils, vegetation, precipitation and ground water recharge. The size of the watershed is also important to consider, in terms of its potential for dilution or retardation of contaminants.

As shown in Appendix C, in order to get a high PBE ranking, all the parameters for a source must have values that indicate an effective barrier. For example, a source with a high PBE would be in flat terrain, with low precipitation and non-erosive soils covered by grassland.

A source is considered to have low PBE (i.e. high potential for contamination), if any of the parameters have values that do not indicate an effective barrier. For example, a source would be considered to have a low PBE if the watershed has steep slopes or if the soils are erodible or have high runoff potential.

For surface water, all sources that do not clearly have a low or high PBE are considered to have a moderate PBE. To be conservative (i.e., health protective), if any of the parameters is unknown, the drinking water source is considered to have low physical barrier effectiveness.

Ground Water

For ground water, the evaluation of Physical Barrier Effectiveness first considers the degree of confinement of the aquifer. An aquifer is classified as confined or unconfined (which includes semi-confined, leaky, and unknown). Detailed review is necessary to determine that an aquifer is confined. Table 6-1 lists indicators to consider in determining the presence or degree of confinement of an aquifer. In general, DHS will assume that an aquifer is unconfined unless detailed hydrogeologic information is available that clearly indicates that the aquifer is confined. Fractured rock aquifers, for purposes of the PBE analysis, are included in the unconfined aquifers, due to the complexity of their flow patterns.

PBE of Confined Aquifers

Confined aquifers generally are considered highly effective in preventing the migration of contaminants. However, the PBE may be diminished if abandoned or improperly destroyed wells are present that corrupt the integrity of the confining layer. The PBE may be improved if the hydraulic head in the confined aquifer is higher than the hydraulic head of aquifers above (i.e., the well exists under artesian conditions). The construction of the well can impact the effectiveness in retarding contaminants, particularly the presence of a properly constructed sanitary seal.

PBE of Unconfined Aquifers

For aquifers that are unconfined, semi-confined or of unknown confinement, the PBE evaluation next considers the soil materials in the aquifer. Wells in fractured rock are always considered to have low PBE due to the high transport velocities that can occur within fractures. Sources in porous media that have a thick continuous layer of clay above the water table have more effective barriers, similar to confined aquifers.

Abandoned or improperly destroyed wells within the protection zones for a source can decrease the effectiveness of the barrier. Because of the prevalence of abandoned and improperly destroyed wells, and the difficulty of locating them, they are considered to decrease the effectiveness of all ground water sources unless their absence can be assured.

In unconfined aquifers, water level conditions of a well can impact the likelihood that contaminants may be drawn to the well. Greater depths to ground water are more effective at preventing contamination. Wells with high production rates, short screened intervals and perforations located close to the top of the water table are more likely to pull contaminants towards the well.

As with unconfined aquifers, the construction of the well in a confined aquifer can impact its effectiveness in retarding contaminants, particularly the presence of a properly constructed sanitary seal.

The procedures for determining PBE for ground water use the checklist in Appendix J. A ground water source is assigned points for each parameter on the Physical Barrier Effectiveness checklist. The points are totaled to arrive at a PBE score for the source, ranging from a low of 0 points to a high of 100 points. The PBE points in themselves are not a quantitative value; rather they are used to determine the overall PBE rating for the source: low, moderate or high.

Physical Barrier Effectiveness

Score Interpretation

<u>Point Total</u>	<u>PBE</u>
0 to 35	Low (includes all sources in fractured rock)
36 to 69	Moderate
70 to 100	High

Notes on Physical Barrier Effectiveness checklist for ground water:

- The highest score a source in a confined aquifer can get is 100 (High PBE). The lowest score a source in a confined aquifer can get is 40 (Moderate PBE).
- The highest score a source in an unconfined aquifer can get is 70 (High PBE). Without having a clay layer 25' thick, the highest score for a source in an unconfined aquifer is 60 (Moderate PBE).
- The only sources that can get High PBE are those in confined aquifers, and those in unconfined aquifers with a clay layer, with no abandoned or improperly destroyed wells in the protection zones.
- All sources in fractured rock are considered to have Low PBE.

8.2.2 Modifying the Risk Ranking for a PCA

As described in Section 7.0, the PCA inventory includes a ranking of the potential risk or threat of contamination to a drinking water source for each type of PCA. In the inventory, activities that are considered to have a high potential for pollution of drinking water sources are designated "very high" or "high" risk. Other activities having lower potential for drinking water pollution are designated "moderate" or "low" risk.

The risk ranking provides a simple approach to comparing the relative risk of types of PCAs. The risk rankings are based on the general nature of the activities and the contaminants associated with them (refer to Table 7-2), not on the density (number of facilities) or facility-specific information, such as management practices.

Comments were received regarding the ability to modify the risk ranking for an individual facility for a type of PCA. The DWSAP program is intended to be a simple, first-cut screening tool. Further detail, such as modifying the risk ranking of types of PCAs (Appendix E or L), is an optional part of the minimum drinking water source assessment. Evaluation of site-specific information may best be performed during the development of a local protection program (see Section 11.0).

8.2.3 Determination of Vulnerability

DHS has developed a simple approach to substitute for a detailed vulnerability determination. The vulnerability analysis uses the PCA inventory and the Physical Barrier Effectiveness determination to prioritize the list of types of PCAs in order to determine to which the drinking water source is most vulnerable.

The vulnerability ranking process is shown in Appendix F for surface water sources and Appendix K for ground water sources. The process involves reviewing each type of PCA identified in the inventory (and those types of PCAs whose presence is unknown) and assigning points based on the risk ranking of the type of PCA, the zone in which it occurs, and the Physical Barrier Effectiveness of the drinking water source. The points are added together, and the types of PCAs are prioritized according to points from highest to lowest, with the highest points representing the types of PCAs to which the source is most vulnerable. Finally, a cutoff point is identified, and the source is not considered vulnerable to types of PCAs with points below the cutoff.

As with the PBE scores, the vulnerability points in and of themselves do not have a quantitative value. Rather, the points are used to relatively rank the types of PCAs for an individual source. The ranking is intended as a preliminary tool to facilitate local source water protection programs that are site-specific.

The steps in the vulnerability ranking are listed below. The points for each element and the process for adding the points and assessing the relative vulnerability can be found following the steps.

1. Determine if any contaminants have been detected in the water supply (the information collected for use in the Consumer Confidence Report may be used for this purpose).
2. Determine, to the extent practical, the types of PCAs associated with detected contaminants.
3. For each type of PCA identified as existing in the protection zone(s), or as unknown, determine the number of points for the associated risk ranking.
4. For each type of PCA, determine the zone in which it occurs and add the points associated with that zone. If that type of PCA exists within more than one zone, repeat the process for each zone.
5. For each drinking water source, determine the Physical Barrier Effectiveness (PBE) and add the points associated with that PBE (these points are for Low, Moderate and High PBE as shown below).
6. Prioritize the types of PCAs by the vulnerability points, from the most points to the least.
7. The drinking water source is vulnerable to all types of PCAs with vulnerability points above the cutoff. Refer to the appropriate Vulnerability Matrix below.
8. The drinking water source is most vulnerable to PCA types with the highest vulnerability points, and to those PCA types associated with a contaminant detected in the water source, regardless of the vulnerability points.
9. The drinking water source is considered vulnerable to types of PCAs whose existence is Unknown, if the vulnerability points are equal to or greater than the cutoff.

Points for Vulnerability Analysis

PCA Risk Ranking Points:

Very High	7
High	5
Moderate	3
Low	1

Zone Points:

<u>Surface Water (Zones defined)</u>		<u>Surface Water (Zones not defined)</u>		<u>Ground Water</u>	
Zone A	= 5	Watershed	= 5	Zone A	= 5
Zone B	= 3	.		Zone B5	= 3

L (1)	A (5)	Watershed (5)	6	5	3	1	11	9	7
L (1)	B (3)		4	5	3	1	9	7	5
L (1)	Watershed (1)		2	5	3	1	7	5	1
L (1)	Unknown (0)*	Unknown (0)*	1	5	3	1	6	4	

* Source is considered vulnerable to type of PCAs that are Unknown, if the Vulnerability Score is 11 or higher.

Vulnerability Matrix for GROUND WATER SOURCES

The cutoff point for vulnerability is **8**. The drinking water source is considered Vulnerable to all PCAs with Vulnerability Score greater than or equal to **8** (shaded boxes).

PCA points	Zone points	PCA + Zone points	PBE Points			Vulnerability Score		
			Low	Med	High	PCA + Zone + PBE points	PBE Low	PBE Med
Risk Ranking	A, B5, B10	.	Low	Med	High	PBE Low	PBE Med	PBE High
VH (7)	A (5)	12	5	3	1	17	15	13
VH (7)	B5 (3)	10	5	3	1	15	13	11
VH (7)	B10 (1)	8	5	3	1	13	11	9
VH (7)	Unknown (0) *	7	5	3	1	12	10	8
.
H (5)	A (5)	10	5	3	1	15	13	11
H (5)	B5 (3)	8	5	3	1	13	11	9
H (5)	B10 (1)	6	5	3	1	11	9	7
H (5)	Unknown (0) *	5	5	3	1	10	8	6
.
M (3)	A (5)	8	5	3	1	13	11	9
M (3)	B5 (3)	6	5	3	1	11	9	7
M (3)	B10 (1)	4	5	3	1	9	7	5
M (3)	Unknown (0) *	3	5	3	1	8	6	4
.
L (1)	A (5)	6	5	3	1	11	9	7
L (1)	B5 (3)	4	5	3	1	9	7	5
L (1)	B10 (1)	2	5	3	1	7	5	1
L (1)	Unknown (0) *	1	5	3	1	6	4	2

* Source is considered vulnerable to type of PCAs that are Unknown, if the Vulnerability Score is 8 or

higher.

8.3 Uses of Vulnerability Analyses

The prioritized list from the vulnerability analysis may be used by a water system in developing protection measures to address activities that are most significant to the water supply.

In addition, the prioritized list will be useful to DHS to determine drinking water sources that may be eligible for chemical monitoring relief.

The prioritized list may also be useful on a statewide basis in determining the types of activities that represent the greatest threats to drinking water supplies, their proximity to drinking water sources, and an estimate of their prevalence.

The PBE determination may be useful for a water system in comparing water sources to each other, and identifying the ones that are at greater risk. The PBE determination may be useful on a state-wide basis in determining areas where sources with high or low effectiveness may be concentrated.

8.4. Vulnerability Assessment Procedures in California Regulations

Existing California regulations detail the vulnerability assessment procedures required to obtain a waiver for monitoring certain organic and inorganic chemicals in drinking water supplies.

California Code of Regulations (CCR), Title 22, Chapter 15, Section 64432(l) addresses vulnerability waivers for cyanide:

(l) A water system may be eligible for a waiver from the monitoring frequencies for cyanide specified in paragraph (b)(1) of this section without any prior monitoring if it is able to document that it is not vulnerable to cyanide contamination pursuant to the requirements in section 64445(d)(1) or (d)(2). (*See below*).

CCR, Title 22, Chapter 15, Section 64432.2 addresses vulnerability waivers for asbestos for ground water systems:

The Department will determine the vulnerability of ground water sources on the basis of historical monitoring data and possible influence of serpentine formations.

CCR, Title 22, Chapter 15, Section 64445(d)(1) and (2) addresses waivers for organic chemicals based on use and susceptibility:

(d) A water system may apply to the Department for a monitoring waiver for one or more of the organic chemicals on Table 64444-A in accordance with the following:

(1) A source may be eligible for a waiver if it can be documented that the chemical has not been previously used, manufactured, transported, stored, or disposed of within the watershed or zone of influence and therefore, that the source can be designated non-vulnerable.

(2) If previous use of the chemical locally is unknown or the chemical is known to have been used previously and the source cannot be designated non-vulnerable pursuant to Paragraph (d)(1), it may still be eligible for a waiver

based on a review related to susceptibility to contamination. The application to the Department for a waiver based on susceptibility shall include the following:

- (A) Previous monitoring results;
- (B) user population characteristics;
- (C) proximity to sources of contamination;
- (D) surrounding land uses;
- (E) degree of protection of the water source;
- (F) environmental persistence and transport of the chemical in water, soil and air;
- (G) elevated nitrate levels at the water supply source; and
- (H) historical system operation and maintenance data including previous Departmental inspection results.

[Home](#)

From: "albarrow" <abarrow@sbcglobal.net>
To: "baynews" <news@thebaynews.com>
Cc: <abarrow@sbcglobal.net>
Sent: Tuesday, March 22, 2005 7:47 PM
Attach: CONFORMED FINAL INITIATIVE PETITION.doc
Subject: Initiative petition ballot measure

Hello Niel;

You said today you intend to write an article on the lawsuits, revocation, recal and Initiative. The initiative has yet to announced. Please use our press release.

Press releases are just that. My view is let the releasor release and get published, then you write an article with your spin separately. Otherwise your paper is all opinion and no news. You may see it in a different light. Reality is reality, but we will keep trying for the facts. The longer the community is deprived of the facts the longer the sewer will take. Lets move forward with the facts and put all the cards on ther table.

My 'umble opinion. Attached is the Initiative we are over halfway in two weeks.

Thank You,

Al Barrow C.A.S.E.

LAW OFFICES

BURKE, WILLIAMS & SORENSEN, LLP

611 WEST SIXTH STREET, SUITE 2500
LOS ANGELES, CALIFORNIA 90017-3102
Tel: (213) 236-0600
Fax: (213) 236-2700
www.bwslaw.com

INLAND EMPIRE OFFICE
3403 TENTH STREET, SUITE 300
RIVERSIDE, CALIFORNIA 92501-3629
Tel: (951) 788-0100
Fax: (951) 788-5785

ORANGE COUNTY OFFICE
5 PARK PLAZA, SUITE 1280
IRVINE, CALIFORNIA 92614-2547
Tel: (949) 863-3363
Fax: (949) 863-3350

SAN DIEGO OFFICE
701 "B" STREET, SUITE 1790
SAN DIEGO, CALIFORNIA 92101-8142
Tel: (619) 615-6672
Fax: (619) 615-6673

SAN JOSE OFFICE
96 NORTH THIRD STREET, SUITE 620
SAN JOSE, CALIFORNIA 95112-5572
Tel: (408) 299-0422
Fax: (408) 299-0429

VENTURA COUNTY OFFICE
2310 EAST PONDEROSA DRIVE, SUITE 25
CAMARILLO, CALIFORNIA 93010-4747
Tel: (805) 987-3468
Fax: (805) 482-9834

Writer's Direct Dial:
(213) 236-2719
sporter@bwslaw.com

OUR FILE NO:
4750-0001

March 23, 2005

Steve Monowitz
Permit Supervisor
725 Front Street,
Suite 300
Santa Cruz, CA 95060-4508

Re: Permit Revocation Request For Coastal Development Application No. A-3-SLO-03-113

Dear Mr. Monowitz:

This communication outlines the appropriate legal standards for the California Coastal Commission ("Commission") to utilize when determining whether revoke the permit ("Permit") that was issued on August 11, 2004 on Application No. A-3-SLO-03-113.

This communication does not focus on the factual allegations relating to the Permit and the hearing, as those allegations are fully presented in the "Permit Revocation Request" prepared by the Los Osos Technical Task Force ("Revocation Request"); the February 23, 2005 rebuttal letter to Mr. Peter Douglas from Ms. Jana Zimmer ("Rebuttal Letter"); and additional comment letters that presumably are expected to have been or will be forwarded to your attention. Rather, this communication is intended to refute the legal assertions made in the Rebuttal Letter, and to provide a more accurate summary of applicable law.

When the appropriate legal standards are applied to those facts previously or subsequently submitted, it should establish that the Permit should be revoked.

I. REVOCATION IS REQUIRED IF THREE PRONGS ARE SHOWN.

CCR Title 14 Division 5.5. Article 16, 13105(a) (the "Regulation") provides:

BURKE, WILLIAMS & SORENSEN, LLP

Steve Monowitz
March 10, 2009
Page 2

Grounds for revocation of a permit shall be:

Intentional inclusion of inaccurate, erroneous or incomplete information in connection with a coastal development permit application, where the commission finds that accurate and complete information would have caused the commission to require additional or different conditions on a permit or deny an application.¹

Stated differently, all that the Commission must find to revoke the Permit is (1) the Commission was presented with incomplete, inaccurate or erroneous information; (2) the inclusion of this information was intentional; and (3) complete or accurate information would have caused the Commission to have issued at least one condition in a different manner, or have denied the application.

A. The Commission Was Presented With Incomplete, Inaccurate or Erroneous Information.

The first prong to establish grounds for revocation is that the Commission was presented with incomplete, inaccurate or erroneous information. Stated differently, this first prong is met if the commission was presented with either incorrect information, or a “half-truth.”

1. There Is No Requirement That The Incomplete Or Incorrect Information Be Presented By A Particular Party.

The Regulation does not require that the incorrect information be submitted by any particular party. The only way to create a requirement of disclosure by a particular party would be to add words to the Regulation. Rather, the Regulation is silent as to who must have made the representations. Adding words to a regulation is prohibited. *Burden v. Snowden* (1992) 2 Cal.4th 556, 562 *modified*, 2 Cal.4th 758 [“Where the words of the statute are clear, we may not add to or alter them to accomplish a purpose that does not appear on the face of the statute or from the legislative history”]; *Leshner Communications, Inc. v. City of Walnut Creek* (1990) 52 Cal.3d 531, 543 (1990) [A court “may not add to the statute or rewrite it to conform to an assumed intent that is not apparent in its language.”]. Rather, the Regulation was drafted in the passive voice to avoid any requirement of action by a particular party.

¹ Section 13105(b) provides the alternate ground for revocation of a permit: “Failure to comply with the notice provisions of Section 13054, where the views of the person(s) not notified were not otherwise made known to the commission and could have caused the commission to require additional or different conditions on a permit or deny an application.”

BURKE, WILLIAMS & SORENSEN, LLP

Steve Monowitz

March 10, 2009

Page 3

And for good reason. Otherwise, individuals that support the issuance of the Permit other than the applicant could make bald faced lies to the Commission and hide behind a rule that says, “unless the factual inaccuracies were presented by the actual applicant, the Commission can do nothing.” This cannot be the law, nor is it the law. The Commission must have, and does have, the power to revoke permits if they were issued on incomplete or inaccurate information.

Nevertheless, the Rebuttal Letter asserts that this is the law. The rules of regulatory construction prohibit adding non-existent words and phrases. *Craig v. City of Poway* (1994) 28 Cal.App.4th 319, 337 [The Legislature is presumed to have meant what it said and the plain meaning of the language will govern the interpretation of the statute]. Contrary to this rule of regulatory construction, in an attempt to add a requirement of a particular actor, the Rebuttal Letter states the first prong requires that the “**applicant** or its representative submitted the contested testimony or information” [emphasis in Rebuttal Letter]. The only requirement is that there *were* factual misstatements; it is irrelevant who made the incorrect statements.

2. The Incomplete Or Incorrect Information Need Only Have Related To The Permit Application.

Similarly, the Rebuttal Letter asserts “the allegations merely restate a difference of opinion as to need for and the impacts of the project, not that the information provided the Commission did not accurately reflect the project to be constructed.” This statement suggests that the only relevant information is that which relates to the “project to be constructed” – the size, shape, and location of the proposed structure. This may have been an inadvertent suggestion, but is nevertheless an improper conclusion, as the plain wording of the Regulation directly contradicts any such limitation. The Regulation provides that for the information to be considered, it need only have been presented “in connection with a coastal development permit application.” Stated differently, if the information was relevant, it is at issue. As such, the Commission may consider any information that is relevant – including paperwork that was filed with the application, the status of approvals, the status of regulatory procedures, etc. The question of whether there are factual inaccuracies is so broad as to include whether the permits were obtained, whether the project complies with the LCP, and anything else related to the Permit.

Simply, the first prong merely requires that sometime during the Permit proceedings the Commission was presented with incomplete², inaccurate or erroneous information.

² The MacMillan 1980 Legal Thesaurus lists twenty three synonyms to the word to the word “incomplete.” The terms are “broken, defective, deficient, devoid, imperfect, inadequate, inchoate, insufficient, non-substantial (not sufficient), outstanding (unresolved), paltry, partial (part), partial (relating to apart), perfunctory, rudimentary, scarce.”

BURKE, WILLIAMS & SORESENSEN, LLP

Steve Monowitz

March 10, 2009

Page 4

B. The Information Must Have Been Intentionally Included.

The second prong is that the information was intentionally included.

1. There Is No Required Showing Of Bad Faith.

The Regulation does *not* state that there is a requirement of bad faith; rather, the Regulation merely requires that the information be included “intentionally.” Stated differently, there is no requirement that the Commission determine that whoever presented the information intended the *effect* of the act (i.e. intended to mislead the Commission), rather, the only requirement is that whoever presented the information had to have intended to do the act (i.e. to have intended to state or type the sentence, prepare a chart as it appeared, or have made any other representation in the manner in which it appeared as opposed to a mere oversight or any other accidental inclusion of information).

This interpretation is consistent with Black’s Law Dictionary (both the 7th & 8th editions) which provides:

“An act is intentional when foreseen and desired by the doer, and this foresight and desire resulted in the act through the operation of the will.”

Simply, for an act to be “intentional” the law requires only a desire to do the act – there is no need to have a desire to have the actual effects of the act.³ In legal jargon, the *actus reus*, is different than the *mens rea*; the act is different than the intent.

Had the Regulation been intended to require an improper motive, then the Regulations would have said so. For example, Regulation could have been drafted so as to require revocation where there was “intentional inclusion of inaccurate, erroneous or incomplete information introduced for the purpose of misleading the Commission.” The Regulation, however, does not say this or anything similar. Because words cannot be added to regulations, the regulations must be interpreted as drafted. *Burden v. Snowden, supra*, 2 Cal.4th 556, 562.

³ Numerous other authorities support this distinction. For example, Webster’s Ninth New Collegiate Dictionary defines intent as “the state of mind with which an act is done: volition.” It further provides that a synonym for “intent” is “voluntary.” Another example is from the criminal context. There an act is intentional, so long as it was not accidental; there is no duty to show any further intent, unless the statutes specifically so provides. *U.S. v. Fuller* 162 f.3d 256 (4th Cir. 1998). This is confirmed by the legal maxim *In criminalibus, voluntas reputabitur pro facto* (in criminal cases, the intent will be taken for the deed.)

BURKE, WILLIAMS & SORENSEN, LLP

Steve Monowitz

March 10, 2009

Page 5

Again, there is good reason for this rule. The drafters of the Regulation (“Drafters”) were justifiably concerned that if the Commission required a showing of improper purpose, purpose could rarely, if ever be shown. How could the Commission ever know the motive of people who drafted documents, especially when the creator of those documents may never have even appeared at the hearing?⁴ The Commission could never with any certainty determine that someone acted with a nefarious purpose. The ultimate concern of the Drafters was to preserve the California Coast. If the Commission was misled – regardless of the reason – the Commission must be allowed to properly regulate the California Coast. As such, the Commission is not trapped by mere technicalities.⁵

Yet that is exactly what the Rebuttal Letter proposes. It provides, “there is no evidence of an intent, let alone a motivation, to include erroneous or incomplete information.” This statement improperly implies that the Commission must first determine whether the facts were incorrect, and *also* whether there was an improper motive. This is not the case.

2. The Best Means To Determine Whether Information Was Intentionally Included Is To Determine How Often the Statements Were Made.

The best means for the Commission to determine whether a statement was incomplete and/or factually inaccurate is to determine how many times that improper statement or a similar such statement was made. If the statement was made only one time, and that statement contradicted numerous other statements made by the same speaker, then the first statement was likely an unintended misstatement. If, however, the statement was made on more than one occasion, then the Commission can reasonably infer that the actor intended to make that statement.

Of course, there can be no hard and fast rule as to exactly when it can be known whether a particular statement is correct. In some situations one factual assertion can be known to be intentionally made. This is why the Regulation was drafted how it was – with a slight ambiguity and enough flexibility for the Commission to determine for itself whether a statement was accidental. Had the Drafters wished there to be a “bright line,” they would have the exact number of misstatements that was required. The Drafters instead opted for flexibility.

⁴ This is not to suggest that those presenting incomplete information to the Commission did not have a motive for doing so. Numerous motives may exist, including: (1) the desire to avoid any potential fines to be imposed by water quality officials; (2) the desire to quickly complete the project before a replacement board of directors opts to terminate the project; (3) the desire to comply with one’s boss who bases job performance based upon whether the project is approved. Rather, this is simply intended to state that there is no need to show any such motivation.

⁵ Of course, there must be some finality to Commission decisions. That is why the three prongs were required.

BURKE, WILLIAMS & SORENSEN, LLP

Steve Monowitz

March 10, 2009

Page 6

At first blush, the Regulation does not appear to be clear as to exactly what is meant by “intentionally.” On further examination, however, when applying general legal principles, it becomes clear that the second prong of the Regulation merely requires a showing that the presenter of the information intended to include the information in the presentation.

C. **The Commission Would Have Either Issued Different Conditions Or Denied The Application.**

The last prong is that the “accurate and complete information would have caused the Commission to require additional or different conditions on a permit or deny an application.” In other words, the Commission must determine that the information would have affected its decision in some manner had the information been complete or accurate.

1. **The Commission May Look To Later Events To Determine Whether The Commission Was Presented With Complete And Accurate Information.**

The Rebuttal letter suggests that the Commission can never look to actions which took place after the hearing. This is an oversimplification. The only rule is that the Commission must determine whether the information presented at the hearing was incomplete or inaccurate at the time. This does not preclude the Commission from considering latter evidence to determine whether the information was correct or complete at the time.

The Regulation does not preclude the use of latter events to determine whether the past was correct. Again, for good reason. Otherwise, someone could lie to the Commission and the Commission could do nothing about it. If, for example, the Commission was told “tomorrow I will transfer \$1 million to the City,” and the transfer never occurred, but instead, three weeks thereafter, the individual transferred the money to a Swiss bank account and fled the country, the Commission should be able to determine based on that information alone that at the time that the statement was made, it was inaccurate – there was never any present intent to transfer the money. This rational conclusion is based entirely upon latter determined facts. Yet the Rebuttal Letter suggests that the Commission must ignore this information and conclude that the information it initially received was accurate. Because this legal interpretation of a regulation leads to absurd conclusions, the legal interpretation must be discarded. *Landrum v. Superior Court* (1981) 30 Cal.3d 1, 9 [courts are reluctant to attribute to the drafters of legislation an intent to create “an illogical or confusing scheme”].

Simply, the Commission *must* be permitted to look to future events; otherwise it could not fully determine the truth of the past events. When doing so, the Commission must determine whether it would have ruled differently. If the Commission would have issued, added, removed

BURKE, WILLIAMS & SORENSEN, LLP

Steve Monowitz

March 10, 2009

Page 7

or changed any conditions, or if it would have denied the Permit, the Commission must revoke the Permit.

II. ADDITIONAL CORRECTIONS

In addition to those comments mentioned above, there are two additional comments made in the Rebuttal Letter that should be corrected.

A. The Existence of a Court Case In No Way Removes The Commission's Duty to Respond.

First, the Rebuttal Letter argues that because there is an existent lawsuit in which it is alleged that the Commission violated the Coastal Act, that somehow the Commission is therefore absolved from determining the issue in the current instance. This is incorrect. The fact that a court of law will determine a somewhat related issue on a previous matter does not absolve the Commission from its statutory and regulatory duty to now determine whether the Permit should be revoked. This is particularly true because the Court must use different legal standards, and will analyze different issues than those discussed herein. In fact, if the Commission fails to rule as required, it would likely be subject to litigation wherein it would be alleged that the Commission's failure of analysis was contrary to law.

B. Neither Party Has The Burden of Proof.

Second, the Rebuttal Letter asserts that "Complainants have the burden to prove several separate elements." This can clearly be shown to not be the state of the law for various reasons. First, the Rebuttal Letter provides no authority that any party has the burden of proof. Second, 14 CCR 13108(d) provides only that Commission may revoke the permit if the Commission finds "that any of the grounds specified in [the Regulation] exist." 14 CCR 13108(d) does not require that either party meet some unspecified burden of proof. Third, the plain wording of the Regulation, too, does not provide that either party has the burden of proof. Last, pursuant to 14 CCR 13104, the Commission's Executive Director has standing to initiate proceedings. If the assertion was correct that the Complainants have the burden of proof, then 14 CCR 13104, or another similar regulation would state how the burden of proof is different in this situation where neither party requested revocation of the permit.

Simply, there is no authority for such a proposition. If indeed, there was some such requirement there would be at least a *scintilla* of evidence to support this proposition. Presumably, the authors of the Rebuttal Letter assumed that the *court* rules of burdens of proof applied in this *administrative* proceeding; but again, no authority is presented for such conclusion.

BURKE, WILLIAMS & SORENSEN, LLP

Steve Monowitz
March 10, 2009
Page 8

III. CONCLUSION

If the Commission finds that (1) the Commission was presented with incomplete, erroneous, or incorrect information; (2) the party intended to present this information to the Commission; and (3) the inclusion of proper information would have caused the Commission to have issued a different decision, then the Commission must revoke the Permit.

Very truly yours,

Scott E. Porter
for BURKE, WILLIAMS & SORENSEN, LLP

From: "albarrow" <albarrow@sbcglobal.net>
To: "Gail McPherson" <ronmcperson@earthlink.net>; "Jim Tkah" <jimtk@charter.net>; "Lisa Schicker" <lisaschicker@charter.net>; <albarrow@sbcglobal.net>; <mshunter@charter.net>; <truehr@oboe.aix.calpoly.edu>; "Chuck Cesena" <clcesena@charter.net>; "Steven Senet" <stevensenet@yahoo.com>; "Julie Tacker" <windmilljt@sbcglobal.net>
Cc: <albarrow@sbcglobal.net>
Sent: Monday, December 06, 2004 6:29 PM
Attach: pipe slopes 2.doc
Subject: pipe slopes 2

Hello;

Recent articles say the Nipomo wastewater collection system manholes had to be coated due to hydrogen sulfide deterioration of the concrete manhole system. The cost \$750,000.00 was due to shallow slopes of 1/16 inch per foot. We estimate 2/3 of the proposed LOCSD system will have the same problem.

A water sample from a gas line excavation was taken from 4th and Pismo. Water was two feet from grade where LOCSD want a 18 foot deep gravity collection pipe. Three samples will be tested to human coliform bacteria. Next week results will be back from the lab.

A retired public works manager from Fresno and a neighbor of mine took a look at the Gas company crew's excavation. If the excavation were 15 to 20 foot deep as planned it would be unsafe without a cage for the workers and the pressure could be so great as to make it impossible to hold the sides. He also noted Fresno uses pond treatment and hired a company for \$120K to do chemical odor control. They treat for a million residents.

He is willing to meet with the technical task force.

Thank You,

Al Barrow C.A.S.E.

From: "shpaige" <shpaige@sbcglobal.net>
To: "abarrow" <abarrow@sbcglobal.net>
Sent: Thursday, June 14, 2007 8:32 AM
Attach: compiled comments.pdf
Subject: Re: Comment on Fine Screening: for LOWWAC: Al Barrow

Compiled Comments Attached:

----- Original Message -----

From: [abarrow](#)
To: [Lisa Schicker](#) ; [Gail McPherson](#) ; [Steven Senet](#) ; [jimtk@charter.net](#) ; [steve paige](#) ; [slogordon@fix.net](#)
Cc: [al barrow](#)
Sent: Wednesday, June 13, 2007 10:28 PM
Subject: Comment on Fine Screening: for LOWWAC: Al Barrow

Hello Committee:

Here is my offering on Fine screening to the end of collection chapter. I included the entro letter to the BOS and exec summary as they impact the process.

In general:

The process is flawed in a number of ways and the cost numbers unjustified by data. The order of events makes it impossible for the ratepayer/voter to know what they are commmiting themselves to. The document needs to be divided into to portions of private and public financed elements which each has their own constraints not covered here. There is a lot of speculation as to constraints assumptions on STEP, like separate power service to the property, replacing all tanks etc. Several **FATAL FLAWS** are listed in my comments. Some ommissions were addressed for the Counties benefit. It is distressing that they will not meet Orenco's request to have an LOCSD rep at the meetings with Carrollo. We need Orenco's cost values and technical in this fine sreening. That inflexibility may cost them the 218 vote.

I ask for consensus on the STEP collection as prefferred method. I also would ask that you all support the Pond/Wetland treatment which complements the reuse by removing the human carbon (that will cause carcinogens when mixed with chlorine in water delivery systems) assuming reuse as drinking water. Anyway here is a page plus of comments:

Here are some points on the Fine Screening by Carrollo Engineering.

The first sentence deals with property owners wish to partner with the County as expressed by a 218 favorable vote. Including expensive technology and an unpopular project in that vote puts Tri-w on the table. Seems risky to the 218. They mention options not on the table that could be viable.

Since this is a cost document the assumed values must be justified. STEP industry show cost 1/3 of Corollo's values they need to be included here as BOOT financed privately does not have the engineering and contingency costs added to these costs. \$50 million is the project estimate given by Orenco. By owning the treatment project and billing the ratepayers the private investment is secured by the infrastructure. 50% of all public projects do not use SRF loan as the saving in low interest is eaten by the strings and red tape. An example is Golden State who goes to the private sector to finance new infrastructure. They mention Regional Water Solutions, which opens another can of worms that the AB2701 included possibly obligating us to Nacamiento water that has some mercury. They are confident that STEP/STEG will remain on the table.

The range of costs, \$134 million to \$207 million are totally unaffordable and numbers justified by assumptions other industry analyst have disagreed with. Another FATAL FLAW. I have two contractor estimates that refute these numbers.

Both Daleo and Tidwell have estimated septic tank to Andre with potholing and paving do not exceed \$12.5 million local contractors at prevailing wage scale.

Page ES-6 makes some serious assumptions: federal funding is available, no HCP or EIR delays and competitive bidding at present there is no guarantee for these assumptions That isn't going to happen. Another reason for a turnkey approach.

Table 1.1 needs to name the facultative ponds still in after fine screening. Is ADS, AIPS or Nelson in?

1.2.1 Seawater intrusion reversal can be accomplished outside of the project by reducing the lower aquifer draft in lieu of upper aquifer water with nitrate for residential landscape application. These expenses can be paid by new development starting with the schools and park. Purple pipe is encouraged and funded by DWR. See the 2003 white paper on reuse. (Our upper aquifer is replenished by septic effluent and classed as partial wastewater or we would not need a sewer.

1.2.2 Golden State has applied to CAPUC for rate increase to pay for infrastructure and treatment that will utilize the upper aquifer. How many ACY will that reduce the lower draft? This is an omission that needs attention.

1.3 Flow projections will not change constituent treatment requirements, with ponds it is not a big factor as with 24 hour in 24 out treatment train but that will effect disposal numbers.

FATAL FLAW "Properly installed bell-and-spigot..." will leak raw sewage into our drinking water aquifer which will soon be the upper aquifer as the lower aquifer is not recharging.

2.1 KEEP THE WATERS IN THE BASIN unless the water is not needed then it can be sprayed and disposed.

2.1.2 Lower aquifer is intruded and that portion is lost That is not necessarily so.

Upper aquifer water must be harvested to the point it does not leak into the bay.

Recharge must not have Phosphorus, which will clog soil pores. All treatments so far do not address this.] impact on reuse. Calcium treatment that is affordable can be used in combination with wetlands to remove phosphorus this so the treated effluent waters are safe.

2.3.2 Bullet 4 describes the cost per acre of grade II-III farmland as \$40, 000.00 I think \$10,000.00 is a more responsible number. Giacomozzi was \$323,000.00 for 35 acres at one point. More inflated costs!

The case is correctly made that pumping the upper aquifer as landscape water is cheaper than piping effluent back to town and much safer.

Table 2.1 page 33

PERCOLATION PONDS AT BRODERSON: This was a project **FATAL FLAW** in 1997 SLO County plan

Urban wastewater reuse is a poor concept compared to upper zone nitrogen water for irrigation instead of drinking water. Less piping and much lower health risk on school and community center.

They represent over 40ACF reduction in saltwater intrusion on the school/park sites.

2.1.2 Sea water intrusion is not irreversible. Early-indicator signals of groundwater contamination: the case of seawater encroachment

FCGMA documents reversal of saltwater intrusion in Ventura County.

<http://publicworks.countyofventura.org/fcgma/GMA%20Management%20Plan-Final%20051506x%20electronic%20v2.pdf> see page 25 for reversal of saltwater intrusion. Grants from 319 USA were used, see page 75 reduction in seawater intrusion.

I recommend a cost benefit analysis for purple pipe in the reuse portion. And a note on septic INI if a tank can be retrofitted

in ground with sprayed epoxy, like manhole restoration it would only cost \$700.00 per tank. saving replacement and removal and retirement costs Replacements could take place at the point of resale so as not to have the community dug up at once. Charlotte County did not replace any tanks. For Gordon's benefit they used a Tarriff document to gain access to private property i have a copy if you would like me to send it along. Tank need certification as per RWQCB3 requirements. If a tank is abandone it could be used to capture rain water and recharge through existing leech fields. (No waste)

The STEP collection works well with pond treatment with low biosolids production and lowest energy demand making the combination the most sustainable as the project goals state Many constraints and costs have been added to STEP by this document that are not supported by the STEP Industry data. I have screened out gravity due to the eventual leakage into the drinking water aquifer as they have admitted. One other **FATAL FLAW** is the seawater intrusion around the Bay where the deepest pipes will be trenched in. When saltwater enters the collection system then the treatment plant will require reverse osmosis and brine trucking to Ventura County will ensue as many as 60 trucks a day. The expense of these impacts was not added to the gravity cost as I recall \$60,000.00 a day or an additional . Less hydrostatic pressure in the upper aquifer and less water volume may bring in saltwater into the upper aquifer. Please remember that sea water levels are predicted to rise making STEP low pressure safer.

Consensus:

Pond treatment/STEP collection and wetland reuse spray irrigation on grazing land moving to AG exchange as it is more widely accepted.

From: "Mike Saunders" <msaunders@orenco.com>
To: "abarrow" <abarrow@sbcglobal.net>
Cc: "Bill Cagle" <bcagle@orenco.com>
Sent: Friday, August 24, 2007 11:41 AM
Attach: Swimming%20in%20Sewage1.pdf
Subject: Sewer Paper

Al,

This is the paper that I referenced that may be of interest. Many interesting statistics.

Michael L. Saunders
National Accounts Leader
Orenco Systems, Inc.

msaunders@orenco.com

Office 1-800-348-9843 (Extension 443)
Cell 941-276-8586
Fax 941-764-6069

Visit our web site at www.orenco.com

