

Dave Stoldt

From: Alexander, Kevin <kalexander@hazenandsawyer.com>
Sent: Wednesday, July 13, 2016 1:49 PM
To: Dave Stoldt
Cc: Solomon, Marc
Subject: RE: Pipeline and Conveyance Value Engineering Services

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Hi Dave,

I think I understand your questions below and have responded to each in Red below:

The California Public Utilities Commission is considering an early approval of the Aquifer Storage and Recovery, Monterey Pipeline, and Monterey Pump Station (VE Items 4, 5, and part of 7 from the solicitation.) Such approval may occur as early as August 18th or September 29th. The pump station is not designed. This raises some questions, as follows:

- How quickly can your team execute a full VE process? Hazen could lead a Full VE Study with the Certified SAVE Leader (Don Stafford) as early as the week of September 19, provided we get the documents by no later than September 12. If the study were a 3-day study, we could do it as early as Sept 7-9, but would require project documents a week ahead of time.

If the project was broken into two components where we needed to do a VE Study on the early components noted above prior to the August timeframe, we could do it but would not be able to use our SAVE Leader Don Stafford. In that case I would propose using Marc Solomon out of our San Francisco office to lead a Charrette style VE Study to look at those components. In that Case, we would propose a shorter 3 Day VE Study of those components and we could do it the first week of August on the 3-5th. This would give us time for the report to be completed prior to the CPUC Aug 18 date.

- What level of design is required? It is possible to do a VE study on the facility planning document, but unless pump station siting is a major issue, it would be better to do the review at a minimum of 15% design completion, and 30% would be better.
- Can the component elements be broken out and done in two phases? If so, how does that affect your fee proposal? Yes elements can be reviewed in separate VE studies. You should plan two 3-day studies. Our proposed cost for a Full 5-day workshop for the original proposal was \$108,635. The cost to conduct two separate 3-day VE studies would be \$149,390.
- If the near term items are separated from the VE review, and not subject to VE, how does that change your fee proposal? It would not change the number of participants or length of the VE and therefore, the actual costs would not change. However, if we could go with a shorter 3 day VE workshop duration of 3 days on fewer project elements, it would reduce the price to \$84,800. We feel this is shorter VE is feasible and could be effective at achieving the overall objective of the project.

Please feel free to give me a call or send me an email if you have any further questions or need clarification of any of the above comments.

Thanks
Kevin L. Alexander, PE

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Monterey Pipeline Alternative C

7-17-16

Cal Am has proposed a new water delivery pipeline. This Monterey Pipeline runs from the injection well site near General Jim Moore Blvd, on Fort Ord, to the Cal Am system connection point at the intersection of Sinex and Hillcrest Avenues in Pacific Grove. This 36 inch pipe runs through the cities of Seaside, Monterey, and Pacific Grove. This seven mile long route is estimated to require digging a 3.5 foot wide by 4.5 foot deep trench, disrupting Monterey Peninsula streets for months. This pipeline installation will require removing and hauling away 9,000 cubic yards of dirt and asphalt from local neighborhoods during the installation process causing traffic flow nightmares. When the digging is completed all of the street damage must be repaired and resurfaced. *Many of these streets may have already been resurfaced by the city of Monterey.*

According to the Cal Am route illustration, the pipeline appears to have 14 right angle (90 degree) bends and 7 shallow angle bends. Each of these bends will require the two connections to the pipeline for a total of 42 compression fit 113 inch circumference connection seams. Each bend creates a restriction to water flow and becomes a weak point for potential seam leaks.

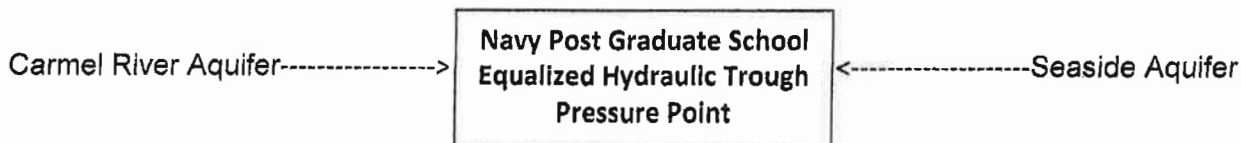
It is believed that this Monterey Pipeline will also require a new pump house that is proposed to be installed on the Monterey Fairgrounds property that will run 24 hours per day 7 days per week. The fairgrounds Board of Directors has tentatively approved the pump house location because they were told that this pump house was to be used exclusively for ASR and will only operate two months a year. If this is not the truth the Fairgrounds board should be informed of the intended uninterrupted use of the pump house.

Another concern is that there does not appear to be a backup system for the Monterey Pipeline. Should the pump fail or if the 36 inch pipe be accidently breached, water to Pacific Grove distribution point could stop and city streets could be flooded.

A major potential issue with the Monterey Pipeline route is that segments are located in or near known Native American sacred grounds. Should a midden be uncovered during construction it will drastically slow progress, lengthen the disruption to normal community life, and increase project cost. Any good systems manager evaluating this project would probably say that the risk to reward ration on this project is very poor.

One of the key factors behind the Monterey Pipeline is the fact that there is a hydraulic trough in the area of the Navy post graduate school. Cal Am has stated this trough is due to the school being in the low elevation point in the water delivery system. Cal am has also stated that the new \$50 million Monterey Pipeline proposed by Cal Am will solve the trough problem.

A quick analysis of the Cal Am water supply system in its simplest form it appears that there are two major water sources. The Carmel River and the Seaside Aquifer seem to be pumping water in opposite direction into this semi-closed hydraulic system. It is theorized that the trough is actually the result of the two water sources reaching a pressure equilibrium near the Navy school.



It would appear that as long as there are two water sources pushing water in opposite directions there will be a trough somewhere in the system. Spending \$50 million installing a new pipeline may simply move the trough to a new location.

There may be many unknown factors in this simple analysis, but it is worth much more investigation by hydrology professionals before committing to a \$50,000,000 project that just moves the problem to a new location.

One potential answer to hydraulic troughs is to have all of the water originate at the one point, the Carmel River, and use booster pumps to circulate it throughout the entire system.

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Cal Am had originally estimated that the Monterey Pipeline will cost the company \$41 million to install assuming no major problems during the installation. The latest Monterey Herald published cost is now \$50 million. Cal Am ratepayers will pay for this project over 30 years. Based on 8.5 % cost-of-capital rate and state and federal taxes, the total cost to ratepayers will be around \$150 million. That's an average of approximately \$11 per month water price increase to Cal Am's every ratepayer. Note, Monterey Peninsula ratepayers are already paying the 9th highest water prices in the United States, not including surcharges. Additionally, Cal Am has requested that the CPUC allow the company to recover an alleged \$50 million in what Cal Am claims is under collected revenue over the past five years, due to ratepayer conservation.

There is a much less expensive and much less disruptive route that is already being planned by the Monterey Peninsula Water Management District (MPWMD) and Cal Am. What it is being planned is a new 36 inch pipe to support the Aquifer Storage Recovery (ASR) which runs in an existing, mostly unpopulated, right-of-way from the Carmel River to the Seaside Aquifer insertion well on General Jim Moore Boulevard. This pipe will be used to take water from the Carmel River when it is running and insert it into the Seaside Aquifer. Consequently this pipe will be used for approximately 2 months per year, but will sit unused for 10 months.

It is proposed here, that this same pipeline be used to deliver Ground Water Recovery (GWR) and future desalinated water in the opposite direction 10 months a year by teeing into the Cal Am Valley Greens Pump Station, Carmel River water distribution system connection. When ASR is running or customer water requirements are lower than this new water delivery system capacity, the new water can be injected into the Seaside Aquifer for storage along with ASR water. (Note that this proposed pipe route is included as part of the desalination DEIR under the name Segunda Pipeline) See the last page for an illustration.

By combining the water delivery of the ASR and Segunda pipeline the cost effectiveness of the ASR pipeline is improved by at least 75% but the overall cost of the combined project is increased by an insignificant amount. The rough estimate of the Segunda portion is less than \$10 million. Note that California regulatory and permitting costs are not known, however if the projects are combined, one EIR could cover both projects. If this pipeline is built and owned by the MRWPCA or MPWMD (not Cal Am) it could be financed with low interest State money or a municipal bond and there would be no profit collected or taxes paid. The final 30-year cost of the combined project could be as low as \$15 million or \$1.04 per month. That's 90% less than the Cal Am proposed Monterey Pipeline \$150,000,000 estimated 30 year cost to ratepayers!

One question that has been asked repeatedly about this route! How much will it cost to pump water over the hill to the Cal Am Carmel River connection? The answer is that for every \$250,000 increase in pumping cost per year the ratepayers' water bills will increase about 52 cents per month. That's \$250,000 divided by 12 months and divided again by 40,000 customers.

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