From: Wetmore, Cynthia
To: Warren, Scott@DTSC
Cc: Barton, Dana
Subject: Montrose/Del Amo Cost
Date: Thursday, December 11, 2014 2:57:48 PM

Hello Scott,

I am sorry to say my flight back to SFO was cancelled today, so I won't be able to get the cost detail until Monday morning. But here is what I remember:

Operating cost for current system:

I have pretty good cost info for energy and supply estimate of about $400K per year. I then added industry rule-of-thumb for additional labor, sampling, and maintenance estimate to bring up the yearly cost of about $650K. I believe I also had replacement costs in year 20 and 35 (? my memory is a little unclear). New present worth of this annual cost for 50 years - excluding year 1 &2 when Montrose is currently expected to operate it - would be $17 million. As I mentioned, energy use is the biggest line item cost.

Expanded System Cost:

Capital cost: About $15 million. I have actual cost for the current unit and scaled up cost for a unit that has seven times the ozone injection capacity of current system. I then estimated cost of a separate containment pad, piping, electrical etc. Came up with $15 million. operating cost of the expanded system would be huge (I cannot remember but millions of dollars). The energy use is a multiple of the current system ($2.8 million), there is a cost savings for sampling, labor and maintenance - it would not be a multiple of the current system estimate. I think the net present use for O&M was $58 million, for a total present worth of $72 Million - $15 + $58.

As I mentioned on the phone, the lower the goal for pCBSA, the more ozone is needed - and is an exponential relationship, not linear. For example in the batch test done years ago, it was estimated that 280 ug/L of ozone is needed to reduced pCBSA from 80,000 ug/L to less than 100 ug/L. The current system has a design ozone production of 22.7 ug/L and maximum ozone generation of 27.3 ug/L.

Feel free to call (I have my called forwarded) 415-972-3059

-Cynthia

From: Warren, Scott@DTSC <Scott.Warren@dtsc.ca.gov>
Sent: Wednesday, December 10, 2014 8:53 AM

To: Wetmore, Cynthia
Subject: RE: I think Scott's email is incorrect

Cynthia,

I'm a geologist with DTSC and I work on the Montrose and Del Amo sites as well as the larger LA Basin Groundwater Restoration project. I was on the USEPA/CalEPA call yesterday morning regarding the Dual Site Groundwater cleanup system and the reinjection of pCBSA and I will participate in the Convening with Cynthia Babich next Monday 12/15/2014.

During the 12/15/2014 convening, I have been tasked with discussing the lateral extent of contaminants in groundwater. I was also asked to briefly discuss the treatment system (I'm not an engineer, but will do my best to discuss generalities).

I have a few questions that I would really appreciate your help with before the meeting next Monday.

1. USEPA provided a graph showing the expected concentration of pCBSA on startup and after 2 yrs, 5, etc. Can I get a copy of the graph and slides?
2. I think it was you that provided some cost numbers for pCBSA HiPOX operation and a timeline for when HiPOX will be used and when it will be shut down. Can I get the capital cost and O&M cost estimates related to the estimated period of HiPOX operation. Added cost estimates for longer HiPOX operation etc. The cost estimates were very good for Executive staff to know and can help in our general discussion on Monday.
3. Water has been extracted and is being held in tanks. Has any testing been performed on the water in the holding tanks? If so, (and it is has value), can we get and share the data at the 12/15/2014 meeting.

Thank you,

Scott (714) 484-5462

(I'm in meetings all day today but will be available tomorrow if you would like to discuss anything)