From: Nichole Embertson
To: Jill Gable/R10/USEPA/US@EPA
Cc: Krista Mendelman/R10/USEPA/US@EPA; Karma Anderson/R10/USEPA/US@EPA; Curt Black/R10/USEPA/US@EPA; George Boggs
Subject: RE: Curt's comments
Date: 02/18/2011 09:35 AM

Thanks for sending that document over Jill.

I did a rough calculation for the cost of adding a good GW monitoring campaign to our study. Things I included in my assessment are: project management, aquifer analysis, groundwater modeling, monitoring wells, field supplies, well installation cost, permits from DOE to install wells, sample collection (labor), sample analysis (laboratory), data [input, review, analysis, and reporting], and decommissioning of wells. With a rough cost input for each of these categories for sampling five 10 acre fields over four years, with one 10 foot well per acre, I came up with a total project cost of $369,000. Over $100,000 of that cost is for laboratory analysis alone. If ECY is okay with us only measuring nitrate, ammonium, EC, dissolved oxygen, and temperature, then that cost can significantly be reduced to just QC analysis, as we have a field probe we could measure the mentioned parameters with for no additional cost. Also, because we do not have the in-house resources or expertise to do the aquifer analysis, modeling, and well installation work, we would be subcontracting that work out based on a competitive bid process. That may actually increase the projected labor and project management costs.

If EPA is able to come up with way to add this monitoring campaign to our study, we would seriously consider adding it if paired with a good scientific justification and objectives.

Let me know if you have any questions.

Cheers,
Nichole

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-----Original Message-----
From: Gable.Jill@epamail.epa.gov [mailto:Gable.Jill@epamail.epa.gov]
Sent: Thursday, February 17, 2011 1:45 PM
To: Nichole Embertson; Mendelman.Krista@epamail.epa.gov; Anderson.Karma@epamail.epa.gov; Black.Curt@epamail.epa.gov
Cc: Mendelman.Krista@epamail.epa.gov; Anderson.Karma@epamail.epa.gov; Black.Curt@epamail.epa.gov
Subject: Curt's comments

Hi Nichole,

Here is Curt's proposed sampling plan. Here is what he had to say about it:

"If we can do this study, as written here, we will answer some important questions beyond just the concentration of nitrate in the unsaturated zone under differing soil treatments. We are getting an answer to the question, "what level of manure application is protective of ground water as a resource?" We are further answering the question, "What density of lysimeter installations is necessary to quantify the flux of nutrients to the ground-water system?" Finally, we are directly determining the comparability of lysimeter data and the direct measurement of nutrient loading to the water table.

What I have traded is the out-year funding for early and more intensive monitoring. I am asking that we not scale up the project until we have demonstrated the ability to see the effects of the changes in manure application treatments. I am asking that we start with only three farms and use a total of six, ten-acre test plots for the first two years.
The monitoring we will do will be evaluated for its adequacy to see the direct effects of manure management on the resources we are trying to protect. I am asking that the tool be iteratively modified using the feedback of ground-water data so that we only apply at levels that are protective of ground water as a resource. It is possible that the project will never get to 35 farms. I believe that good, usable data that allows us to clearly see the effects we are having on unsaturated-zone water, ground water and soil nutrient levels is better than a larger scale project with environmental effects we cannot determine."

As we discussed earlier today, we are working on trying to find an alternate funding source for the monitoring wells. We'll keep you posted on our progress in that arena. If you have a rough cost estimate that has been worked up, could you please send it to me? Thanks.

Karma is out this week, but I am going to try to schedule a call for all of us for next week, so that we can talk some of this through in more detail, after you've had a chance to digest it. I'll get back to you soon with a time. Thanks so much and please don't hesitate to contact me if you have questions in the meantime.

jill
(See attached file: WCD_ARM_QAPP_V1dot1-CB-Comments.docx)
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