Message

From: Alex McDonald [amcdonald@fctwater.com]
Sent: 4/12/2012 2:56:57 PM
To: Nitsch, Bob B. [bbnitsc@nppd.com]
CC: Gene Decker [gdecker@fctwater.com]
Subject: RE: FW:

Bob

See responses below:

Question #1: Could the GGS Reverse Osmosis reject water (solute, I believe) be sent / used directly for wet / dry FGD makeup or as make up to a limestone crushing or lime slaking process? If yes, then we would want to plan accordingly to route this flow stream directly to this equipment and not worry about treating this flow stream at the back end of the plant. If no, then we'll plan on routing this flow stream to as needed water treatment equipment at the back end of the plant. Since this is a 200 gpm system that typically operates 16 hours a day, knowing whether or not this potential flow stream has the potential to be used directly in a FGD would have a large impact on the sizing and specification of equipment to be used for a back end water treatment facility.

Our initial recommendation is no it would require treatment to reduce/remove silica prior to use as scrubber MU - which is one of the primary purposes for the proposed clarifier step. Elevated silica in the scrubber MU may lead to scaling and solids buildup leading to maintenance issues.

Question #2: Back in the early 2000's we installed equipment at the station to recover boiler blowdown water and route this flow stream back to the water plant's clearwell. This system worked quite well and was very effective in reducing inflows to the Evaporation Pond. However, the system created issues with the DI train due to temperature and iron loading. Due to these issues, the use of this system was discontinued.

The boiler blowdown represents a very promising waste stream for re-use. You've already pointed out the issue of temperature and iron loading - that's definitely something for us to consider for the system design - both the sizing and the treatment steps.

The questions arising from these discussion go directly to the objectives of the project. There are a number of streams going to waste - each with different quality and composition - and there will be a number of potential re-use applications - each of with various quality and composition requirements. The objective will be to design a system which has the flexibility of accepting the various streams, treating them and then producing water for re-use which meets the targeted applications. Ideally, the system will have the ability to accept various waste streams and different points and produce water for re-use at different exit points - in that way treatment cost per gal of re-used water can be matched to a given application rather than just treating the entire composite stream to a single quality/composition specification. There will likely be few technical barriers to any of these applications - the design and treatment decisions will be one of cost per gal of re-used water.

We've re-drafted the proposal and want to make sure it addresses your requirements. I'd like to suggest that we send it to you for comments prior to circulating.

Regards,

Alex

Alexander C. McDonald, Ph.D
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-----Original Message-----
From: Alex McDonald [mailto:amcdonald@fctwater.com]
Sent: Tuesday, April 10, 2012 8:45 AM
To: Nitsch, Bob B.
Cc: Gene Decker
Subject: Re: FW:

Thanks Bob - we'll be working on it this week.

Alex

Sent from my iPhone

On Apr 10, 2012, at 6:00 AM, "Nitsch, Bob B." <bbnitsc@nppd.com> wrote:

> My apologies. Forgot to include the attachment.
>
> Bob
>
> From: Nitsch, Bob B.
> Sent: Tuesday, April 10, 2012 6:59 AM
> To: 'Alexander C. McDonald Ph. D'; 'Gene Decker'
> Subject:
>
> Gene, Alex,
> Here are our initial comments on the proposal. Some of these comments are technical in nature so they can be addressed later. Essentially as we discussed yesterday, need to have the proposal laid out in a Phased approach, a clear defining of the deliverables to be supplied with each phase, a rate sheet for labor costs and expenses and an estimated cost to complete the first phase of the study.
>
> Drop me an e-mail if you have any questions or need me to clarify anything before you send the revised proposal.
>
> Thanks.
>
> Bob Nitsch
> GGS Project Engineering Leader
> (308) 386 - 5312 - Office
> (308) 660 - 4730 - Cell
>
> <3290_001.pdf>