

From: Darren Indyke <[REDACTED]>
To: [REDACTED]
Subject: Fwd: Well K Sampling
Date: Sat, 06 Apr 2013 20:44:44 +0000

Set up Conf call on Monday at 11:30 please. Use non litigation line. I think we have 2. Thanks

Sent from my iPhone

Begin forwarded message:

From: Zorro Ranch <[REDACTED]>
Date: April 6, 2013, 4:29:08 PM EDT
To: Darren Indyke <[REDACTED]>
Subject: Re: Well K Sampling

Trip was fantastic, wonderful to catch up with family and friends
Can you get [REDACTED] to set up call with all parties?
Will forward numbers tomorrow
Also need to discuss the closure of the original bore and transfer of Dakota water rights to Well B
Regards
Brice

On Apr 5, 2013, at 5:53 PM, Darren Indyke <[REDACTED]> wrote:

Sorry. Did not mean to be short. Am typing from car while waiting at a traffic light. So hi and hope your trip was great!

Sent from my iPhone

On Apr 5, 2013, at 7:41 PM, Zorro Ranch <[REDACTED]> wrote:

Hi there
Would 9.30 am Mountain time be ok for everybody ?
Please advise
Regards Brice

On Apr 5, 2013, at 4:51 PM, Darren Indyke <[REDACTED]> wrote:

Please proceed as proposed and please include me and Rich Kahn in your conference call with Siemens.
Thank you.

DARREN K. INDYKE
DARREN K. INDYKE, PLLC
575 Lexington Avenue, 4th Floor
New York, New York 10022

email: [REDACTED]

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On Apr 5, 2013, at 6:19 PM, Casey Cook wrote:

All;

At the request of Richard Kahn, I met with Richard, Darren Indyke, and Steve Chavez at Zorro Ranch on Wednesday April 3 to discuss and observe Well K water quality. During the visit, Steve C. turned on the Well K pump and we observed cloudy water flowing from the end of the pipeline near the storage tanks. The odor that Brice had earlier described was present. We agreed the odor may suggest the presence of hydrocarbons in the water. The Mancos shale in which the well is completed is known to have oil and gas bearing zones, but usually at deeper levels. Steve C. put a water sample in a clear bottle, which I brought back to the office to observe. The sample was cloudy for about a day before it cleared up. During that time, bubbles formed on the side of the bottle and a dark, fine sediment collected at the bottom. The odor remained after the cloudiness disappeared.

The cause of the cloudiness, odor and sediment remains uncertain without further water chemistry analysis. Possible causes include the presence of hydrogen sulfide, naturally occurring hydrocarbons, and sulfide reducing bacteria (SRB). Darren I. and Richard K. asked for costs to analyze water samples for these constituents. Albuquerque water chemistry laboratory, Hall Environmental provided the following prices:

Hydrogen sulfide \$100
Volatile organic compounds (hydrocarbon gases that bubble out at atmospheric pressures) \$120
Total petroleum hydrocarbons (dissolved hydrocarbon compounds) \$90

The above costs totaling \$310 are for normal turnaround of 10 days. Expediting the analysis for four-day turnaround would be twice the cost (\$620).

Analyzing for SRB costs \$95; turnaround is 15 days, but expediting the analysis is not possible because of the time needed to culture the bacteria.

Finally, to analyze the composition of the sediment that is settling out of the water sample over time (and appears to be the cause of the cloudiness), I recommend two additional analyses: a filtered and unfiltered sample for anion/cation balance and metals. Filtering will remove any floating material that is causing cloudiness. The difference between the filtered and unfiltered (which leaves in the floating material) samples will be the composition of the sediment. Each of those samples is \$220, for total of \$440. Expediting these samples adds 50% to the cost for a total of \$660.

I recommend the foregoing water sample analyses to understand the cause and composition of the cloudiness and odor in Well K. The total cost for the analyses is \$845 for normal turnaround or \$1375 for expedited turnaround (except SRB). The results will help the Ranch determine the best course of action for treating the problem, and determine whether well treatment is necessary. Brice G. and I have a conference call planned with the Siemens representative on Monday (April 8) to discuss how hydrocarbons (if they turn out to be present) might affect his recommendation for a mixed media filter system.

As requested, we have ordered a transducer for Well K from Solinst. Cost of the transducer with deployment cable and communication cable is \$1200. Solinst indicates they expect to deliver the unit late next week. As we discussed, I will show Steve C. how to deploy the transducer in the well, program the datalogger and download data.

Please let me know how you wish to proceed with the water sampling, or call if further discussion is needed.

Casey C.

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