

Re: Results of Water and Gas Testing performed by EPA

Doug Beak to: Chris Lister

11/28/2010 10:31 PM

History: This message has been replied to.

Hi Chris,

I hope you had a good holiday. I looked over the data that you sent to me and have a few comments I thought I would pass along to you.

The isotope data for the Lipsky well and the production well look to be identical and are thermogenic in origin. The gas composition of the production well and the Lipsky are similar and the compositional changes are what one might expect for a gas that has migrated from the production well to the Lipsky well. With that said, this is not conclusive evidence because of the limited data set, however it also does not rule out gas migration from the production well to the Lipsky well. What will be very important to document is the timeline of when the well went into production and the appearance of gas in the Lipsky well. I could not compare the analysis from the Texas Railroad Commission with your analysis. The problem here is that the data from any of the three analytical labs is presented as normalized data. This means that the data is normalized at least to what was analyzed for and not all the labs analyzed the same components or possibly used the same method. I would suggest in the future, that the data is provided in terms of non normalized data in mass or concentration units. This way we can directly compare data and normalize all data to the same set of criteria. The only way now to compare the data would be to make assumptions to fill in data gaps and I don't believe we have enough experience at this site or data to do this at this time.

The organic analysis shows that BTEX and other solvents are also present in the Lipsky well. Although this could be further evidence of contamination from the production well, it will be important to ensure that other potential sources of these chemicals can be eliminated and the production well sampled for these constituents if possible.

Inorganic analysis needs to be more complete. I'm partial to inorganic analysis from my training and I really can not put together a picture of water quality with the data we have. The pH of the water is fairly alkaline and could be representative of HF fluids, but we also know that there is sulfide in the water because of the water treatment. With a pH this high I would expect there to be considerable alkalinity, which is the case. Sulfide could be a source of alkalinity, but bicarbonate and hydroxide could also play a role. Hydroxide alkalinity could be natural or it has been implicated as a potential indicator of HF fluids because of the use of hydroxides in the HF process. With the data we have right now we can not pin down the source of alkalinity. Are there any public drinking water wells in the area or water quality data for the aquifer that the Lipsky well is in? If so could you please let me know where I could obtain this data. I want to compare what we have with this "background" composition to get more of an idea of what impacts could be.

Suggestions based on the information I have at this time.

1. If possible ascertain what was used in the HF fluids and as much information as we can on the drilling and completion of the production well and domestic wells in the area.
2. Continue to monitor the production well and Lipsky well for gas composition and isotopic analysis. Be sure to request non normalized data and if possible from the same lab using the same methods.
3. We need more wells in the area. Sample other wells in the area for gases, inorganic and organic contaminants identified already as well as the Lipsky and production well.
4. Monitor suggested wells for major cations and anions, and bicarbonate/carbonate, TDS, sulfide and pH. Bromide is in the produced water so this could be important to measure in other wells as well. With

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Docket: SDWA-06-2011-1208

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the data presented, trace metals don't seem to be important at this point, but we should at least get back ground data for additional wells and then revisit the importance later.

I've not had the chance yet to follow up with the USGS on a geologic cross section of this area, but hope to do so soon. If you have any questions please feel free to contact me. I hope this was helpful.

Doug

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Chris Lister---11/19/2010 09:45:30 AM---Doug, Here are copies of the results of gas and water testing th...

From: Chris Lister/R6/USEPA/US
To: Doug Beak/ADA/USEPA/US@EPA
Cc: Michael Overbay/R6/USEPA/US@EPA
Date: 11/19/2010 09:45 AM
Subject: Results of Water and Gas Testing performed by EPA

Doug,

Here are copies of the results of gas and water testing that we had done on the Lipsky, Hayley, and Range Production Butler 1-H wells.

[attachment "Isotech_gas_isotope_results.pdf" deleted by Doug Beak/ADA/USEPA/US] [attachment "Water Report TestAmerica.pdf" deleted by Doug Beak/ADA/USEPA/US]

This information and that contained in the previous email should be considered Enforcement Confidential at this time and not released outside of EPA.

I have found the well completion reports for the Lipsky and Hayley water wells, as well as a number of other domestic wells in the vicinity of the Lipsky well. If you'd like copies of these reports please let me know.

Thanks,

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