

**OGMCOAL - RE: Emery Water Sampling**

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**From:** "Gefferth, John" <JohnGefferth@consolenergy.com>  
**To:** Steve Christensen <STEVECHRISTENSEN@utah.gov>, "Behling, Peter" <PeterBe...>  
**Date:** 5/20/2011 6:31 AM  
**Subject:** RE: Emery Water Sampling  
**CC:** "OGMCOAL@utah.gov" <OGMCOAL@utah.gov>  
**Attachments:** earthfax.wellreport.pdf

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Steve

The Emery town well report can be found at Appendix B-6 in the annual report.  
 I have attached a copy.

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**From:** Steve Christensen [mailto:STEVECHRISTENSEN@utah.gov]  
**Sent:** Wednesday, May 18, 2011 9:22 AM  
**To:** Behling, Peter  
**Cc:** Gefferth, John; OGMCOAL@utah.gov  
**Subject:** Re: Emery Water Sampling

Hi Peter,

Yes, I still want to come out and see the monitoring sites. Unfortunately, next week is full for me. For reasons beyond my control, I have lots of fires breaking out at the same time.

That said, it sounds like we'll have to do this 3rd quarter. Just give me a couple weeks notice 3rd quarter and we'll get it done then.

Any word on the Emery Town Well reports? I've been waiting on this report for eons. It was my understanding that it would be submitted with the annual report. I've looked for it in there and it appears it was not submitted. These reports are to be submitted bi-annually. Since the PHC was revised back in April of 2008, I have yet to receive one.

Additionally, has Richard White been working on the revisions to the water monitoring plan? What's the status of that?

Thanks for the heads up. We'll have to do it next quarter it sounds like.

Steve

Steve Christensen  
 Environmental Scientist III  
 Utah Division of Oil, Gas and Mining  
 (801) 538-5350

>>> "Behling, Peter" <PeterBehling@consolenergy.com> 5/17/2011 7:11 AM >>>  
 Steve,

I know you were talking about coming out and water sampling with me this quarter. Do you still want to come along? I don't know your time frame, or which ones you want to go to. It will probably take a good three days to do this quarterly samples. In looking into my schedule June is filling up fast with stuff, so I need to get going on the sampling. I'm kind of running the idea of starting next week. Does this fit in with your schedule, and do you still want to come? I usually try and get all the surface one day, wells that need to be sampled the next, then try to finish the wells that just need to get the depth the next. Let me know what you want to do.

Thanks,

Peter R. Behling  
Emery Mine Operations  
**CONSOL ENERGY**  
Office: 435-286-3513  
Cell: 435-749-1334  
Email: [peterbehling@consolenergy.com](mailto:peterbehling@consolenergy.com)

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January 28, 2011



**EarthFax**

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Subject: Emery Town Well Data

Dear John:

Attached is a summary of the data collected from the Emery Town wells. Explanatory notes are provided at the bottom of the spreadsheet to assist in data interpretation. As noted on page VI-22 of the M&RP, the driller's log of Emery Well #2 reports a static water level in this well of 91 feet below ground surface in 1979. An apparent static water level of 85 feet below ground surface was measured in November 2007. However, I observed in November 2010 that the air line used to measure water levels was plugged. Therefore, the pump was pulled from that well in December 2010 and a depth to water of 228.15 was measured.

It is my opinion that the apparent 137-foot difference between the driller's log report and the December 2010 measurement was not due to mining activity. This opinion is based on data collected at monitoring well H(U), completed in the upper Ferron Sandstone immediately north of the adjacent area boundary (see Plates VI-1 and VI-7). Since Emery Well #2 is completed in the upper and middle Ferron Sandstone, monitoring well H(U) is considered an appropriate indicator of water-level conditions between the mining area to the south and the Emery Town wells located about 14,000 feet north-northeast of well H(U). As indicated in the attached graph of data collected from well H(U), water levels at the monitoring well have generally experienced only a  $\pm 10$ -foot variation since 1979. Hence, the apparent decline of 137 feet at Emery Well #2 cannot be attributed to mining-related impacts. In my opinion, it is more likely that the apparent decline at Emery Well #2 is more likely due to one or both of the following:

- The 1979 water level at the Emery well may have been incorrectly noted. The well log indicates that this well was drilled to a depth of 2,535 feet but completed to a depth of only 1,555 feet. It is possible that confined conditions exist at depths below the level of completion and that the static water level was measured prior to final completion. For instance, water levels reported for monitoring well H(L) completed in the lower Ferron Sandstone at generally about 40 higher than those reported for well H(U) in the upper Ferron Sandstone. Thus, the "apparent" static water level recorded for Emery Well #2 in 1979 may not be indicative of the condition following completion.
- In addition, Emery Well #1, located about 90 feet north of Well #2, is a producing well. The drawdown effects created by pumping from Well #1 probably affect the water level at Well #2.

Please let me know if you have any questions concerning my analysis.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rich".

Richard B. White, P.E.  
President

Enclosure

Emery Town well data  
Consolidation Coal Company - Emery Mine

SITE TYPE	SITE NAME	DATE	Wat. Temp Deg. C	F-pH pH units	F-D.O. mg/l	Cond(FLD) umhos/cm	Depth ft	L-pH pH un	TSS mg/l	O/G mg/l	NH3 mg/l	D-As mg/l	D-B mg/l	D-Cd mg/l	D-Ca mg/l	D-Cu mg/l	D-Fe mg/l	D-Pb mg/l	D-Mg mg/l	D-Mn mg/l	D-K mg/l	D-Se mg/l	D-Nla mg/l	D-Zn mg/l	Bicarb mg/l	Acidity mg/l	Carb Cl mg/l	Hydroxide mg/l	NOS mg/l	
Well	Emery Town Well #1	11/29/2007	18.2	8.0		1225			38	<2	0.4	<0.010		<0.001	33.13	<0.03	<0.01	20.82	0.016	3.93	<0.02	190.79		229	<5	20		<0.05		
Well	Emery Town Well #1	Mar-08		8.2		1189																								
Well	Emery Town Well #1	Jun-08	2.3																											
Well	Emery Town Well #1	Sep-08																												
Well	Emery Town Well #1	Nov-08																												
Well	Emery Town Well #1	Jun-09																												
Well	Emery Town Well #1	Jul-09																												
Well	Emery Town Well #1	6/24/2010	24.2	7.1		1188									32.72	<0.03	<0.03	19.94	0.016	3.93		205.66		237	<5	17				
Well	Emery Town Well #1	9/23/2010	16.0	7.7		936									8.13	<0.03	<0.03	11.53	0.006	3.16		192.45		142	<5	54				
Well	Emery Town Well #1	12/29/2010	19.7	8.34		1317									31.93	<0.03	<0.03	18.34	0.023	3.75		199.97		230	<5	17				
Well	Emery Town Well #2	11/28/2007					85																							
Well	Emery Town Well #2	Mar-08																												
Well	Emery Town Well #2	Jun-08																												
Well	Emery Town Well #2	Sep-08																												
Well	Emery Town Well #2	Nov-08																												
Well	Emery Town Well #2	Jun-09																												
Well	Emery Town Well #2	Jul-09																												
Well	Emery Town Well #2	6/24/2010																												
Well	Emery Town Well #2	9/23/2010																												
Well	Emery Town Well #2	12/29/2010					228.15																							

- Notes:
1. Carbonate concentration reported for 9/23/2010 sample is questionable, since carbonate is normally present only at a pH of 8.5 or greater.
  2. Water level reported for 11/28/2007 is questionable, since the air line was later discovered to be faulty.
  3. The pump was pulled from Well #2 on 12/29/2010. Water level measurements were collected after that date using an electronic probe.
  4. Water level data measured from the top of casing.

Emery Town well data  
Consolidation Coal Company - Emery Mine

SITE TYPE	SITE NAME	DATE	NO2 mg/l	O-PO4 mg/l	SO4 mg/l	T-P mg/l	T-Alk mg/l	T-Hardns mg/l	L-Sp umhos/cm	TDS mg/l	Set Solids mil	D-Al mg/l	D-Mb mg/l	T-Cats meq/l	T-Anis meq/l	T-Fe mg/l	T-Mn mg/l	T-Mg mg/l	COMMENTS	
Well	Emery Town Well #1	11/28/2007		<0.05	357	229	168		812											
Well	Emery Town Well #1	Mar-08																		Discharge pipe under water in canal
Well	Emery Town Well #1	Jun-08																		Discharge pipe under water in canal
Well	Emery Town Well #1	Sep-08																		Discharge pipe under water in canal
Well	Emery Town Well #1	Nov-08																		Discharge pipe under water in canal
Well	Emery Town Well #1	Jun-09																		Discharge pipe under water in canal
Well	Emery Town Well #1	Jul-09																		Discharge pipe under water in canal
Well	Emery Town Well #1	6/24/2010			329	237	164		784											
Well	Emery Town Well #1	9/23/2010			270	195	68		632											
Well	Emery Town Well #1	12/29/2010			360	230	155		752											
Well	Emery Town Well #2	11/28/2007																		
Well	Emery Town Well #2	Mar-08																		No data
Well	Emery Town Well #2	Jun-08																		No data
Well	Emery Town Well #2	Sep-08																		No data
Well	Emery Town Well #2	Nov-08																		No data
Well	Emery Town Well #2	Jun-09																		No data
Well	Emery Town Well #2	Jul-09																		No data
Well	Emery Town Well #2	6/24/2010																		No data
Well	Emery Town Well #2	9/23/2010																		No data
Well	Emery Town Well #2	12/29/2010																		No data

- Notes:
1. Carbonate concentration reported.
  2. Water level reported for 11/28/2007.
  3. The pump was pulled from Well #1.
  4. Water level data measured from

# Water Levels in Well H(U)

