Message

From: Jennings, Eleanor [Eleanor.Jennings@parsons.com]
Sent: 6/22/2017 11:25:44 PM
To: Bo Stewart [Bo@praxis-enviro.com]; Cosler, Doug [Doug.Cosler@TechLawInc.com]; d'Almeida, Carolyn K. [dAlmeida.Carolyn@epa.gov]; Davis, Eva [Davis.Eva@epa.gov]; Dan Pope [DPope@css-inc.com]; Wayne Miller [Miller.Wayne@azdeq.gov]; Steve Willis [steve@uxopro.com]
CC: Brasaemle, Karla [Karla.Brasaemle@TechLawInc.com]
Subject: RE: Williams - ST012 - Period ending 5/12 report

So hydrocarbon-degradation rates jumped up 300% during methanogenic conditions as opposed to aerobic conditions? Ummmm..... that goes against pretty much everything in the biodegradation literature. I'm assuming that this methanogenic "degradation" includes thermal breakdown?

-E

Still working on my other email (I'm trying to eat dinner at the same time, and it's not working out well....). ☺

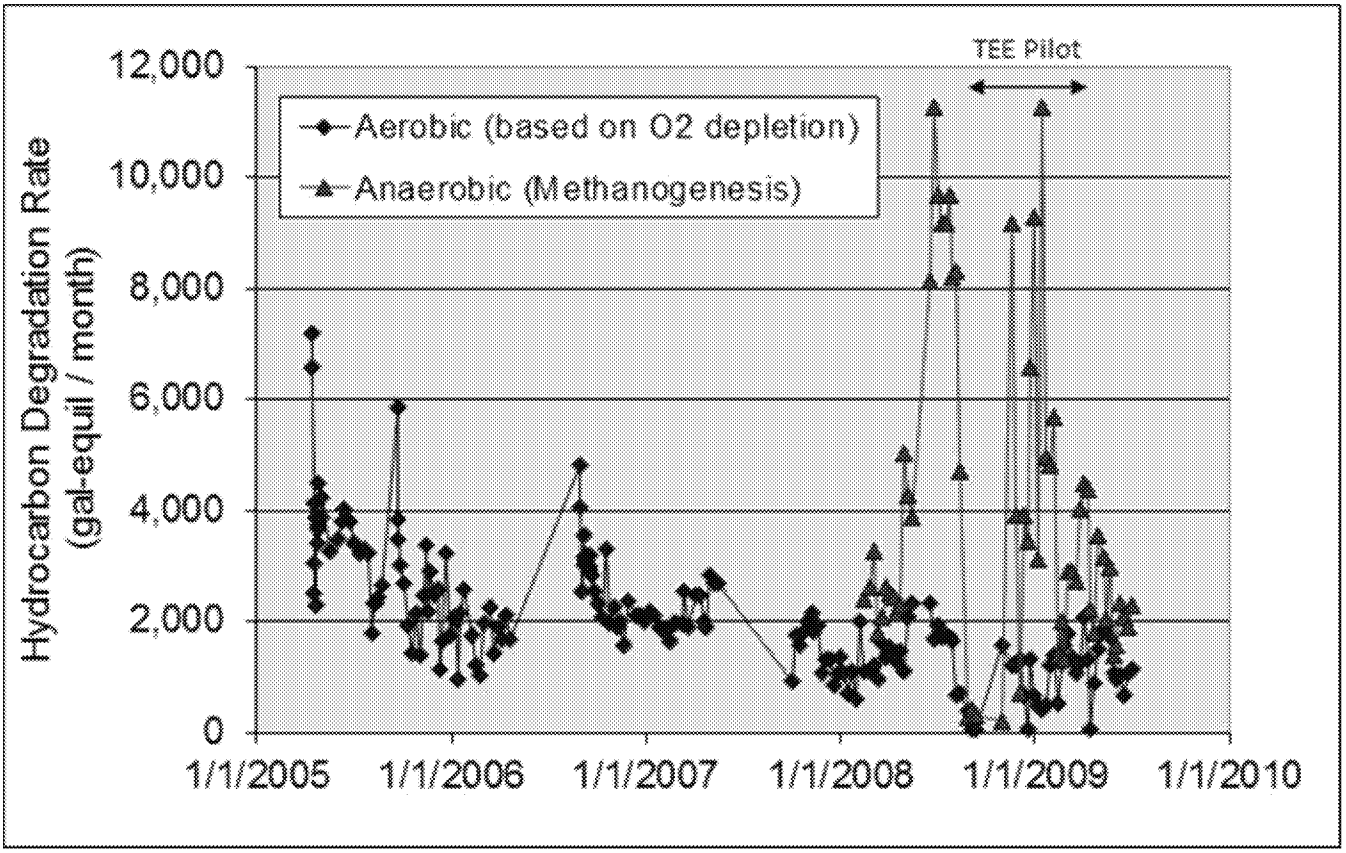
Eleanor M. Jennings, M.S., PhD
Principal Scientist - Environmental Microbiology and Biogeochemistry
Eleanor.Jennings@Parsons.com
202.302.9996

"Safety Isn't Expensive. It's Priceless."

From: Bo Stewart [mailto:Bo@praxis-enviro.com]
Sent: Thursday, June 22, 2017 7:20 PM
To: Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Cosler, Doug <Doug.Cosler@TechLawInc.com>; 'd'Almeida, Carolyn K.' <dAlmeida.Carolyn@epa.gov>; Davis, Eva <Davis.Eva@epa.gov>; Dan Pope <DPope@css-inc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Steve Willis <steve@uxopro.com>
Cc: Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>
Subject: Re: Williams - ST012 - Period ending 5/12 report

Here are the similarly calculated rates of degradation from SVE operations starting in 2005 and through the TEE pilot test from manifold data. The SVE manifold is a mix of extraction wells including the middle vadose zone (likely aerobic) and the deep vadose zone (very likely anaerobic). Measures from individual extraction wells are available to sort out where the degradation was occurring. A similar decay in methanogenesis was observed after steam injection ceased.

To Doug's point, I refrained from going into the aqueous diffusion rate of methane compared to the vadose zone during the call. Didn't see a point in continuing to "disagree with everything." I don't think I disagree with everything -- I think people disagree with me. I agree with field data.



On 6/22/2017 3:59 PM, Jennings, Eleanor wrote:

Yeah, but you made a point .... if they drew in that much O2, the subsurface would NOT be anaerobic, and certainly not to the degree to support sulfate-reducers or methanogens. Aerobic and methanogenesis are at polar-opposite ends of the redox spectrum.

E

PS: I'm working on an email response to the whole "we have methane - yeah!" issue as well as temperature. Hold on while I finish it up.....

Eleanor M. Jennings, M.S., PhD
Principal Scientist - Environmental Microbiology and Biogeochemistry
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"Safety Isn't Expensive. It's Priceless."

-----Original Message-----
From: Cosler, Doug [mailto:Doug.Cosler@TechLawInc.com]
Sent: Thursday, June 22, 2017 6:56 PM
To: 'd'Almeida, Carolyn K.' <dAlmeida.Carolyn@epa.gov>; Davis, Eva <Davis.Eva@epa.gov>; Dan Pope <DPope@css-inc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>
Cc: Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>
Subject: RE: Williams - ST012 - Period ending 5/12 report

Discard what I said about aerobic bio, as they estimated bio due to methanogenesis.

-----Original Message-----

From: d'Almeida, Carolyn K. [mailto:dAlmeida.Carolyn@epa.gov]

Sent: Thursday, June 22, 2017 6:00 PM

To: Davis, Eva <Davis.Eva@epa.gov>; Dan Pope <DPope@css-inc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>

Cc: Cosler, Doug <Doug.Cosler@TechLawInc.com>; Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>

Subject: RE: Williams - ST012 - Period ending 5/12 report

That's why the made the effort today to demonstrate how much methane they are pulling out as evidence that biodegradation is occurring. But I still think the key question is why is the trend in methane production declining from initial record right after SVE startup. Does this represent methane production from decades of biodegradation before SEE which they just now recovered, and is tapering off as it is extracted, and maybe does not reflect current biological conditions?

Carolyn d'Almeida

Remedial Project Manager

Federal Facilites Branch (SFD 8-1)

US EPA Region 9

(415) 972-3150

"Because a waste is a terrible thing to mind…"

-----Original Message-----

From: Davis, Eva

Sent: Thursday, June 22, 2017 2:31 PM

To: Dan Pope <DPope@css-inc.com>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Wayne Miller <Miller.Wayne@azdeq.gov>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>

Cc: Cosler, Doug <Doug.Cosler@TechLawInc.com>; Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>

Subject: RE: Williams - ST012 - Period ending 5/12 report

You people need to see where the high temperatures are in relation to where they plan on trying to treat

-----Original Message-----

From: Dan Pope [mailto:DPope@css-inc.com]

Sent: Thursday, June 22, 2017 4:29 PM

To: d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Davis, Eva <Davis.Eva@epa.gov>; Wayne Miller <Miller.Wayne@azdeq.gov>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>

Cc: Cosler, Doug <Doug.Cosler@TechLawInc.com>; Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>

Subject: RE: Williams - ST012 - Period ending 5/12 report

Sounds reasonable to me.

-----Original Message-----

From: d'Almeida, Carolyn K. [mailto:dAlmeida.Carolyn@epa.gov]

Sent: Thursday, June 22, 2017 4:27 PM

To: Davis, Eva; Dan Pope; Wayne Miller; Jennings, Eleanor; Steve Willis; Bo Stewart

Cc: Cosler, Doug; Brasaemle, Karla

Subject: RE: Williams - ST012 - Period ending 5/12 report

Just a guess, but I think the concern is a 1 degree change in temp over course of day could be a stressor on the bugs that are present in that location. I suspect they realize that EBR wont be effective in the SEE treatment area because it is too hot, that's why they are focusing on the perimeter. And if they do significant extraction, the temperature redistribution will kill off the bugs that are present.

Carolyn d'Almeida

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(415) 972-3150

"Because a waste is a terrible thing to mind…"

-----Original Message-----

From: Davis, Eva

Sent: Thursday, June 22, 2017 2:10 PM

To: d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>; Dan Pope <DPope@css-inc.com>; Wayne Miller <Miller.Wayne@azdeq.gov>; Jennings, Eleanor <Eleanor.Jennings@parsons.com>; Steve Willis <steve@uxopro.com>; Bo Stewart <Bo@Praxis-Enviro.com>

Cc: Cosler, Doug <Doug.Cosler@TechLawInc.com>; Brasaemle, Karla <Karla.Brasaemle@TechLawInc.com>

Subject: FW: Williams - ST012 - Period ending 5/12 report

I have a real disconnect on this - hope the microbiologists on the call know more about this than I do - they are concerned that a 1F/day temperature increase in the extraction wells could affect the microbial population, but they think the temps out there (see attached report and look at where the TMPs are relative to where they plan on pumping) aren't a problem? Can those bugs work at temps up to 200F?

-----Original Message-----

From: Smallbeck, Donald R. [mailto:Donald.Smallbeck@amecfw.com]

Sent: Monday, June 12, 2017 10:06 AM

To: 'Wayne Miller' <Miller.Wayne@azdeq.gov>; d'Almeida, Carolyn K. <dAlmeida.Carolyn@epa.gov>

Cc: JERRARD, CATHERINE V CIV USAF HAF AFCEC/CIBW <catherine.jerrard@us.af.mil>; Pearson, Stuart C. <Stuart.Pearson@amecfw.com>; 'steve@uxopro.com' <steve@uxopro.com>; Davis, Eva <Davis.Eva@epa.gov>; d p <DPope@css-dynamac.com>; 'Brasaemle, Karla' <KBrasaemle@TechLawInc.com>; Levine, Herb <Levine.Herb@epa.gov>

Subject: Williams - ST012 - Period ending 5/12 report

BCT members

Please find attached for your information the preliminary report describing ST012 activities for the period from April 29 thru May 12, 2017.

D.R. Smallbeck

Principal Program Manager

Construction Remediation

Amec Foster Wheeler

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Lloyd "Bo" Stewart, PhD, PE
Praxis Environmental Tech., Inc.