From: Garret Johnson
To: McClure, Dean, EMNRD
Subject: [EXT] RE: Step Rate Test for WEU 212 1-2-2020.xlsx
Date: Wednesday, January 15, 2020 10:01:37 AM
Attachments: image001.png
WEU211_to_WEU220_xsect.pdf
WEU 211 WBD.ppt
Step Rate Test for WEU 211 1-7-2020.xlsx
IPI_WEU_211_01.14.2020.pdf

Hi Dean,

In response to your questions below, I have attached a structural cross section of the two wells. You can see in the cross section that the wells are essentially on strike. The WEU #220 is a producer with two completion intervals within the unitized zones, where the WEU #211 is part of the water flood pilot targeting the Seven Rivers Bowers section between 7-RVRs_F and 7-RVRS_G5 on the cross section. The interval of the WEU #211 is where we are injecting for secondary recovery and requesting the increased pressure to inject. I hope this answers your question – please let me know if you need anything further.

I have also included the IPI Application, wellbore diagram and revised step rate procedure.

Thank you,
Garret

From: McClure, Dean, EMNRD <Dean.McClure@state.nm.us>
Sent: Monday, January 13, 2020 1:42 PM
To: Garret Johnson <garret@faenergyus.com>
Subject: RE: Step Rate Test for WEU 212 1-2-2020.xlsx

Hello Garret,

I am looking at the proposed well and how it compares to the surrounding wells.

It looks like if we compare the WEU 211 to the WEU 220 in regards to ensuring that the area of lowest frac gradient is captured:

WEU 220 1st stage was about neg 420 to neg 585 sea level
WEU 211 is about neg 397 to neg 481 sea level (If the depth is shifted 50 feet due to the dip)

This is making the following assumptions:

Lower Yates top is about 50 feet higher in the WEU 211 than the WEU 220
Yates and 7 Rivers thickness is about the same between the two wells

My questions to you are the following:

How does your formation tops compare between the WEU 220 and WEU 211 wells?
Do you agree that WEU 220 has an additional 100 feet of open perfs below those existing in

the WEU 211?

Do you believe my two assumptions to be accurate?

Additionally, I touched base with Phil in regards to the step interval. He and I are both fine if you wish to have all your steps be in intervals of 1 bpm. However, he does wish all the steps to have equal intervals. With that in mind, please submit a new plan with steps all of either .5 or 1 bpm.

Towards the end of the week, I will sit down with Phil and discuss how large of an area and over what intervals will be considered in any orders issued from the proposed step rate test. Towards that end, please email an answer to my questions above and submit any additional information that you feel will be helpful to our discussion.

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From: Garret Johnson <garret@faenergyus.com>
Sent: Monday, January 13, 2020 8:37 AM
To: McClure, Dean, EMNRD <Dean.McClure@state.nm.us>
Cc: David Schellstede <david@faenergyus.com>
Subject: [EXT] Step Rate Test for WEU 212 1-2-2020.xlsx

Dean,

Good morning. Thank you for taking the time to speak with David and me last week.

Please see the proposed procedure for the upcoming step rate test of the West Eumont #211. We plan to begin this test at a rate of 1 bpm. To reduce the number of steps and conserve water, we will incrementally increase the rates by 1 bpm between1 bpm to 4 bpm – at this point, the procedure calls for a step rate of 0.5 bpm. Once parting pressure is observed at surface, we will continue to test for 2 more steps. If parting pressure has not been observed by the end of this procedure, we will conduct an additional step.

We are currently gathering all other information for the step rate test. Please let me know your thoughts on the proposed procedure.

Best regards,

Garret Johnson |Engineer
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