

Michael Feldewert

From: Hathcock, Roy
Sent: Thursday, October 01, 2015 8:09 PM
To: Lazzari, Justin; Patrick, Larry
Cc: Allen, Cari; Johnson, Kyle; Martin, Joe; Prejean, John; Smiley, Tim; Ricard, Garret; Braswell, Mike (Contract)
Subject: RE: Diamond 34 State #1 SWD (30-025-33387)

Justin,

Great comments, all very good suggestions. I forgot about the Water Flow log, it is also known as an Oxygen Activation log. Another alternative is a Radioactive Tracer Logging (click on link for more details). This is what I have used in my past to prove to the Stage (LA & TX) that we were injecting in our permitted zone.

We know their well is the closest SWD well to our acreage so it is likely the source of the energy we are seeing at the shallow depths. The way it gets into the shallower horizon has to be either the OXY SWD well or another well that doesn't have the OXY injection zone isolated; possibly a poorly abandoned well.

Roy Hathcock

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BEFORE THE OIL CONSERVATION
DIVISION
Santa Fe, New Mexico
Exhibit No. 11
Submitted by: OXY USA Inc.
Hearing Date: March 29, 2016

From: Lazzari, Justin
Sent: Thursday, October 01, 2015 10:30 AM
To: Hathcock, Roy <Roy.Hathcock@dvn.com>; Patrick, Larry <Larry.Patrick@dvn.com>
Cc: Allen, Cari <Cari.Allen@dvn.com>; Johnson, Kyle <Kyle.Johnson@dvn.com>; Martin, Joe <Joe.Martin@dvn.com>; Prejean, John <John.Prejean@dvn.com>; Smiley, Tim <Tim.Smiley@dvn.com>
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Roy----

A few more comments I had formulated earlier, in response to Kyle/Cari's correspondence.....not anything you don't already know, but some additional thoughts to the rest of group:

1. Temp Survey – I agree with your recommendation for Devon oversight during logging runs. My initial thought to the temp survey, is that it is the cheapest/quickest solution for Oxy to perform.....~\$5K to \$7K. Potential issue here, is that often times a temp survey can be inconclusive/vague – in part due to such a shallow depth of investigation. Therefore, if the temperature log alone, does indicate containment to the permitted interval, we would likely want to pursue another method of investigation for confirmation.
2. Water Flow Log (RST) – I would recommend running this logging tool. Utilizing a WFL (pulsed neutron determination) would be a marked improvement over the temp log – to more confidently locate and evaluate water migration behind pipe, or behind-pipe crossflow between zones. This tool would provide us with a higher degree of confidence – directly measuring whether there is flow, or no flow –