Message

From: Dan Johnson [DanJohnson@florencecopper.com]
Sent: 10/17/2018 12:15:52 AM
To: Rumrill, Nancy [Rumrill.Nancy@epa.gov]
Subject: RE: Permit No. R9UIC-AZ3_FY11-1; FCI's PTF Cement Bond Evaluation Method
Attachments: ATT00001.txt

Hi Nancy,

I apologize for my response but I was out of the office most of today. Below is information from our geophysical contractor that should address your request:

The large diameter steel overburden casing cement seals were inspected by Southwest Exploration using an acoustic borehole imager modified for casings in very large boreholes (ABI-VLB). This tool is also referred to as an Ultrasonic Imaging Tool (USIT). It utilizes an ultrasonic transducer at 1.2 MHz that both transmits and receives the signal. The tool used sampled horizontally every 5° (72 times per revolution) and every 0.0246 ft. It records a travel time image that can be converted to an acoustic radius image and acoustic calipers to provide casing shape. The amplitude image provides an indication of the condition of the inside of the casing. A thickness image of the casing is generated along with a score image (indicative of data quality) and a CADI image. CADI or Cement Attenuation Decay Index is a qualitative measurement related to the acoustic impedance of the cement behind casing. The higher the CADI value, then the higher the cement impedance, and the higher the cement density. The ABI-VLB utilizes a real-time processor in the tool for the thickness and CADI calculations.

The rate of decay of the waveforms received indicates the quality of the cement bond and channeling at the cement/casing interface, and the resonant frequency of the casing provides the casing wall thickness required for pipe inspection. The 360° data coverage enables the evaluation of the quality of the cement bond as well as the determination of the internal and external casing condition.

Best Regards,

Dan Johnson VP | General Manager

Florence Copper Inc.
1575 W. Hunt Highway Florence AZ USA 85132
C 520-233-1930 **T** 520-374-3984 **F** 520-374-3999
E danjohnson@florencecopper.com **Web** florencecopper.com

From: Rumrill, Nancy [mailto:Rumrill.Nancy@epa.gov]
Sent: October-15-18 5:23 PM
To: Dan Johnson
Subject: RE: Permit No. R9UIC-AZ3_FY11-1; FCI's PTF Cement Bond Evaluation Method

Hi Dan,

We need more information on the interpretation of the ultrasonic VLB logging tool in order to evaluate the responses for cement bond to the steel casing and formation wall. Can you or your geophysical subcontractor provide that information or provide a reference to it?
Thanks, Nancy

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Nancy Rumrill (rumrill.nancy@epa.gov)
Drinking Water Protection Section (WTR-3-2)
US EPA, Region IX
75 Hawthorne St.
San Francisco, CA 94105
Phone (415) 972-3293

From: Dan Johnson [mailto:DanJohnson@florencecopper.com]
Sent: Monday, October 15, 2018 10:27 AM
To: Albright, David <Albright.David@epa.gov>
Cc: Rumrill, Nancy <Rumrill.Nancy@epa.gov>; Maribeth E. Greenslade <Greenslade.Maribeth@azdeq.gov>
Subject: Permit No. R9UIC-AZ3_FY11-1; FCI's PTF Cement Bond Evaluation Method

Mr. Albright, last week's

Please see the attachment for Florence Copper's PTF Cement Bond Evaluation Method per our last week's discussion. FCI will be available at your convenience to answer any questions on this submittal.

Dan Johnson VP | General Manager

Florence Copper Inc.
1575 W. Hunt Highway Florence AZ USA 85132
C 520-233-1930 **T** 520-374-3984 **F** 520-374-3999
E danjohnson@florencecopper.com **Web** florencecopper.com

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