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From: [Boedeker, Ralph](#)
To: [Wilson, Scott](#)
Subject: RE: NRC Request for Exit Meeting
Date: Monday, January 13, 2014 8:18:40 AM
Attachments: [01-03-14 Monitor Calibration Record.pdf](#)
[Dose Calcs for Source Shield.pdf](#)

Scott, we received our radiation monitor back from SE International. Attached is our calibration record. I performed the measurements and calculations you recently requested, as follows:

- Estimated time to move the source rod from the gauge to the concrete shield is approximately 2 to 3 seconds.
- Estimated length of time the source rod was in the shield, per gauge maintenance is 3 to 5 minutes.
- Number of gauges maintained was two gauges. Note, in speaking with George Foxwell, my technician who performed the maintenance, he recalls that he maintained one gauge only once since he started at Tetra Tech (around 8 years), and the second gauge only twice. In dose calculations, I conservatively assumed once per year.

I also performed measurements, as you had requested, with the source rod in the concrete shield (lowered rod into shield hole from gauge) at contact with shield, at one foot away from shield, and at 3 feet away from shield. I used the results for the 3 feet away measurement for dose calculations. Results of the measurements are as follows:

- At shield (side with least amount of concrete thickness): 35 mR/Hr
- One foot away from shield: 1.1 mR/Hr.
- Three feet away from shield: 0.35 mR/Hr.

Also attached, are our dose calculations for the following:

- Non-employee in adjacent office area (1st Floor). I conservatively assumed 15 feet away, for 5 minutes per year
- Non-monitored employee in office area (2nd Floor). I conservatively assumed 10 feet away, for 5 minutes per year, and also ignored the dose reduction that would be realized due to the 2nd floor concrete slab.

Dose calculations indicate public dose was well below permissible of 2 mRem/hr and 100 mRem/year.

I have to run to an off-site meeting shortly. When I return, I will get with Andy Mazzeo to determine his schedule this week and provide some times for our exit meeting.

Please let me know if you have any comments, or have any questions.

Thanks Scott.

Ralph

From: Wilson, Scott [<mailto:Scott.Wilson@nrc.gov>]
Sent: Wednesday, January 08, 2014 2:52 PM
To: Boedeker, Ralph
Subject: RE: NRC Request for Exit Meeting

Ralph,
Thanks for the response. I will talk with you when you return.

Scott

From: Boedeker, Ralph [<mailto:Ralph.Boedeker@tetrattech.com>]
Sent: Wednesday, January 08, 2014 2:51 PM
To: Wilson, Scott
Subject: Re: NRC Request for Exit Meeting

Scott, I am still in travel. Will call when back in office to go over your requests. Hopefully tomorrow.
Thanks.

Ralph Boedeker (mobile)

On Jan 8, 2014, at 12:42 PM, "Wilson, Scott" <Scott.Wilson@nrc.gov> wrote:

Ralph,
In order to complete my assessment of doses to individuals while gauge maintenance was being conducted, please provide estimates of the following:

1. How long it takes to move the source rod from the gauge to the concrete shield,
2. How long the source rod was in the shield, per gauge maintenance,
3. How many gauges were maintained in this manner,
4. Dose rate at contact, on foot, and three feet from the concrete shield while the source is in it.

Thanks.

I hope your trip was a safe one, if not timely.

Sincerely,

Scott Wilson
Health Physicist
Commercial, Industrial, R&D, and Academic Branch
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Phone: 610-337-5136
Fax: 610-337-5269

From: Boedeker, Ralph [<mailto:Ralph.Boedeker@tetrattech.com>]
Sent: Monday, January 06, 2014 10:52 AM
To: Wilson, Scott
Cc: Mazzeo, Andy
Subject: Re: NRC Request for Exit Meeting

Understood. Will call.

Ralph Boedeker (mobile)

On Jan 6, 2014, at 9:47 AM, "Wilson, Scott" <Scott.Wilson@nrc.gov> wrote:

Ralph,
Call me when you get in the area. I have to arrange the meeting with my Branch Chief, Blake Welling, as well so the coordination is important.

Sincerely,

Scott Wilson
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From: Boedeker, Ralph [<mailto:Ralph.Boedeker@tetrattech.com>]
Sent: Monday, January 06, 2014 10:39 AM
To: Wilson, Scott
Cc: Mazzeo, Andy
Subject: Re: NRC Request for Exit Meeting

Scott, I apologize, Thursday afternoon won't work, as I will be out of office. Can I call you to schedule meeting when I get back to the area?

Ralph Boedeker (mobile)

On Jan 6, 2014, at 9:24 AM, "Wilson, Scott" <Scott.Wilson@nrc.gov> wrote:

Mr. Boedeker,
I understand you would like to reschedule the exit meeting. I propose we reschedule the meeting for Thursday, January 9, 2014, starting at 1:30 PM. The meeting should last no longer than 30 minutes.

Please respond acknowledging your availability for the new date and time.

Sincerely,

Scott Wilson
Health Physicist
Commercial, Industrial, R&D, and Academic Branch

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From: Boedeker, Ralph
[mailto:Ralph.Boedeker@tetrattech.com]
Sent: Monday, January 06, 2014 9:07 AM
To: Wilson, Scott
Cc: Mazzeo, Andy
Subject: Re: NRC Request for Exit Meeting

Scott,

I think it may be a good idea to reschedule our exit meeting to later in the week if possible. I am stuck in Iowa, I was originally to return Sunday, but flights through Chicago continue to get canceled. I'm currently scheduled to fly back on Tuesday, however this is the third cancellation I had received. If it works out this time, I will be back Wednesday morning, to check to see if radiation monitor has been received. There is a good chance this flight might be canceled as well, will keep you informed.

Can we reschedule?

Ralph Boedeker (mobile)

On Dec 31, 2013, at 6:37 AM, "Wilson, Scott"
<Scott.Wilson@nrc.gov> wrote:

Thank you. It's important that we determine the dose rates before the exit meeting. Have a great holiday!

Scott

From: Boedeker, Ralph
[mailto:Ralph.Boedeker@tetrattech.com]
Sent: Tuesday, December 31, 2013 7:37 AM
To: Wilson, Scott
Cc: Mazzeo, Andy
Subject: RE: NRC Request for Exit Meeting

Scott,

You may call us at 302-283-2233, Wednesday, January 8, 2013. I will let you know the status of receipt of our radiation monitor early next week. Please note that I will be out of the office the rest of this week after today, and will be returning Monday morning.

Thanks Scott.

Ralph

From: Wilson, Scott
[mailto:Scott.Wilson@nrc.gov]
Sent: Tuesday, December 31, 2013 7:31 AM
To: Boedeker, Ralph
Cc: Mazzeo, Andy
Subject: RE: NRC Request for Exit Meeting

Ralph,
2:30 PM is a good time for us as well.
Please provide a telephone number for us to call for the meeting.

Scott Wilson
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From: Boedeker, Ralph
[mailto:Ralph.Boedeker@tetrattech.com]
Sent: Monday, December 30, 2013 2:32 PM
To: Wilson, Scott
Cc: Mazzeo, Andy
Subject: RE: NRC Request for Exit Meeting

Scott,

Andy Mazzeo will not be available at 1:30 PM January 8, 2014. Can we make it 2:30 PM same day?

Let me know. thanks.

Ralph

From: Wilson, Scott
[mailto:Scott.Wilson@nrc.gov]
Sent: Monday, December 30, 2013 2:25 PM
To: Boedeker, Ralph
Subject: NRC Request for Exit Meeting

Mr. Boedeker,
If you are able to provide the survey information regarding the shielded source holder by next Wednesday, I would like to determine your availability at 1:30 PM, Wednesday, January 8, 2013, for a telephonic exit meeting to discuss the results of the inspection. Mr. Mazzeo should attend this meeting.

Scott Wilson
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